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ABSTRACT

The report is an effort to summarize and synthesize the work of six academic medical centers and affiliated health maintenance organizations that participated in the project for the development and implementation of curricula for physician training in HMO's. The selected works of the participating institutions constitute the bulk of the report. They are organized along the focal issues of the project: (1) curriculum development process; (2) curriculum content; (3) instructional methods; (4) program evaluation; and (5) educational costs. The participating institutions are: Georgetown University and the Georgetown University Community Health Plan; University of Rochester and the Genesee Valley Group Health Association; University of Pennsylvania and the Penn Urban Health Maintenance Program; University of Washington and the Group Health Cooperative of Puget Sound; Brown University and the Rhode Island Group Health Association; and Harvard University and the Harvard Community Health Plan. (Author/MSE)

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ED132943

Final Report

PRIMARY CARE EDUCATION IN HMOs: CURRICULUM CONTENT, EVALUATION AND COSTS

Contract No. BHM-HRA N01-MB-44009

July 1976

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EDUCATION & WELFARE
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Final Report

PRIMARY CARE EDUCATION IN HEALTH MAINTENANCE ORGANIZATIONS:

CURRICULUM CONTENT, EVALUATION AND COSTS

A Collaborative Study

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Bethesda, Maryland 20014

July 1976

Project for the Planning, Development and Demonstration of Educational Programs for Medical Students and/or Interns and Residents in Health Maintenance Organizaitons

Contract No. BHM-HRA N01-MB-44009

Directed By

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

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Conducted By

Georgetown University and Georgetown University Community Health Plan, Washington, D.C.

University of Rochester and Genesee Valley Group Health Association, Rochester, New York

University of Pennsylvania and Penn Urban Health Maintenance Program, Philadelphia, Pennsylvania

University of Washington and Group Health Cooperative of Puget Sound, Seattle, Washington

Brown University and Rhode Island Group Health Association, Providence, Rhode Island

Harvard University and Harvard Community Health Plan, Cambridge, Massachusetts

Supported By

Bureau of Health Manpower, Health Resources Administration, Department of Health, Education and Welfare

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FOREWORD

The health maintenance organization concept, emerging from the successful experiences of selected prepaid group practice organizations and medical foundations in the United States, was defined by Paul Ellwood in the early 1970's. He characterized HMOs as those organizations which provide comprehensive health services to voluntarily enrolled consumers, on the basis of fixed price - or capitation - contracts. The concept, of course, was not new. Unique, however, was the accelerated interest in this organizational structure for reconfiguration of health services of the United States in general. Various elements of the HMO model, the potential for cost containment, the practical utilization of epidemiologic concepts and preventive health measures, the possibilities for experimentation with varied organizational assignments of health professionals, the philosophy of responsibility for the health of a defined population presented features of interest to the Administration, the Congress, and the academic medical community. Newly developed health care programs, assisted by Federal financing and organized in a fashion encompassing the concepts described above, became attractive models not only for the education of undergraduate and graduate medical students and students of other health professions, but also as organizational concepts through which the academic medical center might discharge some or all of its health care service obligations to the surrounding community. Furthermore, as a means for meeting the need for additional experiences in ambulatory care in order to accommodate ever larger class sizes correlated with increased emphasis on primary care education, academic medical center-health maintenance organization affiliations appeared attractive. By 1973, 15 percent of the academic medical centers had developed formal affiliations with HMOs, and an additional 68 percent had either definite plans to establish such or were contemplating this action.

In 1973, the Association of American Medical Colleges, under contract with the HMO Office, Health Services Administration, Department of Health, Education and Welfare (Contract No. HSM 110-72-393), developed a project which described and analyzed various prototype arrangements. A summary of that work was completed in August 1974. It was soon realized that, although the development of a mutually agreeable affiliation was in itself a complex matter, the introduction of even minimal numbers of students into health care programs whose survival was dependent upon the very critical factors of efficiency of operations and consumer acceptance, presented problems of even greater complexity. Paradoxically, the growth of the HMO concept nationally would be dependent on the number of young physicians experienced in this concept. Consequently, a project related to curriculum development for the education of physicians in HMOs was considered to be a desirable corollary effort. The current project, supported by the Bureau of Health Manpower, Department of Health, Education and Welfare, addresses the issues of curriculum development, implementation, and evaluation and the methodologies for identifying educational costs. This report details the results of a collaborative effort of six academic medical centers and the affiliated health maintenance organizations, and it makes recommendations for future programatic development.

At present, it is difficult to predict the rate of HMO growth in the United States. A new AAMC study currently underway indicates that in 1976, 17% of the academic medical centers report formal affiliation with HMOs, and only 12% report plans to develop such. Many events of the past four years have had a retarding effect upon such growth nationally. In view of current conditions, early predictions of having the HMO option available to 90% of the U.S. population by 1980 appear naive, overly optimistic, and unrealistic. Furthermore, because of continued economic uncertainties, it is difficult to predict the immediate effect of the recent HMO Legislative Amendments.

The reader should be aware, however, that the major issues addressed in this project - the development, implementation, and evaluation of curriculum, and the development of methodologies for calculating educational costs are themselves generic issues not necessarily confined to the HMO concept. These are issues of obvious concern to those charged with the planning of primary care education in general, and for those chaged with arranging ambulatory care experiences in particular. As such, it is to be hoped that this report will provide useful information to those charged with curriculum development, to faculty preceptors, and to health systems administrators involved with teaching programs.

James I. Hudson, M.D.
Project Director

PREFACE

This report is an effort to summarize and synthesize the work of six academic medical centers and affiliated health maintenance organizations that participated in the project for the development and implementation of curricula for physician training in HMOs. The selected works of the participating institutions, presented as resource papers following Chapter 8, constitute the bulk of the report. They are organized along the focal issues of the project -- (1) curriculum development process, (2) curriculum content, (3) instructional methods, (4) program evaluation, and (5) educational costs. The first chapter describes the purposes of the project and its methodology and the six subsequent chapters summarize the institutions' accomplishments. The final chapter is an effort to synthesize these achievements, and present our findings, conclusions and recommendations.

This project is indebted to the members of the project advisory committee, Drs. Samuel J. Bosch, Joel J. Alpert, Jack D. Myers, Mitchell T. Rabkin, John P. Utz and Eugene Vayda, for their dedication, advice and guidance in designing and directing the project; to the special consultants, Drs. Christine E. Bishop, Arthur S. Elstein and Edwin B. Hutchins, for producing excellent results under trying circumstances; and to the Project Directors for the institutional projects and their staffs, without whose toil, dedication and cooperation this project would not have succeeded.

Chapter 1

OBJECTIVES AND METHODS OF THE PROJECT

This project was conceived in the early 1970's when HMOs first gained national prominence and active support from the federal government as a new and viable alternative to the current health care system. Predictions were made at the time that, "The current 5-7 million HMO enrollees could increase to approximately 40 million by 1980. . . Physician requirements would increase from 7,000 full-time equivalents in 1973 to about 40,000 by 1980. This figure represents about 10% of the expected number of physicians practicing in 1980. . ." [1]. Although the need for physician manpower in HMOs today is not as great as predicted (less than 6 million people were enrolled in HMOs in 1975 [2]), primary care education in the HMO is no less important today than it was several years ago.

The increasing pressure in recent years on medical schools to produce more primary care physicians has resulted in efforts to develop new and appropriate sites for primary care training at both the graduate and undergraduate levels of medical education. An organized system of care such as an HMO has the advantage of providing an alternative approach to health care over the traditional hospital outpatient department or the office practice. Moreover, although the nationwide shortage of primary care physicians willing to practice in the HMO is not as great as once predicted, the geographic maldistribution of primary care physicians has resulted in acute regional shortages, especially in rural areas. In fact, a recent report cites the inability to obtain physicians as a major cause for recent failures of HMOs [3].

The overall goals of the project, then, were:

(a) To encourage the establishment of HMOs by developing training programs that would help in increasing the "supply of appropriately trained, oriented, and motivated physicians to allow major growth and expansion of the HMO concept in the U.S." [4]; and

(b) To develop "educational programs with major emphasis on primary and comprehensive care to train physicians to function effectively in the HMO health care team setting" [4].

The Association of American Medical Colleges (AAMC) entered into contract with the Bureau of Health Resources Development (presently Bureau of Health Manpower), Health Resources Administration, Department of Health, Education and Welfare in May 1974. The contract called for the AAMC to solicit proposals and select, with the assistance and guidance of a project advisory committee, six medical schools sponsoring or affiliated with HMOs and willing to develop HMO-based educational programs for medical students and/or residents. By September 1974, six medical schools and their affiliated HMOs had been selected for participation.

In June 1974 the AAMC invited medical schools to submit, on a competitive basis, proposals outlining their interest and qualifications. A copy of the letter of invitation is presented as Appendix 1 following this chapter. To qualify, a medical school had to have an affiliation with a local HMO and a history of activities in and understanding of primary care issues. A letter of interest and support from the HMO was also required. Up to $40,000 for program development and staffing was offered to each institution selected for participation. Eleven medical schools submitted proposals and, of these, the following schools and HMOs were selected:

1. Georgetown University and Georgetown University Community Health Plan (GUCHP), Washington, D.C.
2. University of Rochester and Genesee Valley Group Health Association (GVGHA), Rochester, New York
3. University of Pennsylvania and Penn Urban Health Maintenance Program (Penn Urb), Philadelphia, Pennsylvania
4. University of Washington and Group Health Cooperative of Puget Sound, Seattle, Washington
5. Brown University and Rhode Island Group Health Association (RIGHA), Providence, Rhode Island
6. Harvard University and Harvard Community Health Plan - Cambridge Center (HCHP-CC), Cambridge, Massachusetts

The most important selection criteria were the clarity and specificity of the curriculum objectives, the appropriateness of the curriculum development process, and the feasibility of the proposed study.

In November 1974, the AAMC subcontracted with each participating medical school to develop, during the calendar year of 1975, the curriculum specified in its proposal, to develop appropriate evaluation mechanisms and to estimate the cost of education in the HMO. For monitoring purposes, the institutions were required to submit a work plan, quarterly progress report and a final report by December 1975. The major milestones and activities of the project are presented on the following page.

Project to Develop Curriculum
for
Physician Training in HMOs

TIMETABLE

Milestones	Date
Project begins	May 1974
First meeting of project advisory committee (PAC)	June
Letter of invitation mailed to medical schools	June
Submission of Proposals	August
Second PAC meeting; selection of participating institutions	September
Orientation session, Washington, D.C.	November
Curriculum development activities begin	January
Second meeting of project participants, Rochester, N.Y.	March
Site visits	April-July
Third PAC meeting	June
Third meeting of project participants, Cambridge, Mass.	September
Meeting on curriculum evaluation	November
Presentation of symposium at AAMC Annual Meeting	November
Termination of curriculum development activities	December
Submission of institutional reports to AAMC	February 19
Submission of AAMC report to DHEW and project termination	July 1976

The institutions accomplished much more than required. The Bureau of Health Manpower (BHM) required the development but not implementation of curricula. Nevertheless, virtually all groups not only constructed HMO-based curricula but they field-tested and implemented them during the course of the project. In addition, most of the groups designed evaluation techniques for assessing the effectiveness of the educational programs or developed cost methodologies for estimating the cost of education in the HMO, neither of which was required under the terms of the BHM contract. Two institutions, the Universities of Rochester and Washington, worked on both evaluation and costs.

The projects benefited from three conferences that were held during the course of the contract. The initial conference, held at the AAMC headquarters in Washington, D.C. in November 1974, was an orientation session for participants. No further meetings were planned but at the orientation session participants expressed a strong desire to meet again soon to share information and ideas amongst each other. With the approval of the BHM Project Office, the AAMC arranged two additional conferences. The first of these two-day conferences was hosted by the Rochester group in March 1975 and the second was hosted by the Harvard group the following September.

Both of these conferences focused on three major issues--curriculum content and design, program evaluation, and education costs--and provided forums for sharing skills and new ideas. The conference agendas are presented as Appendix 2 at the conclusion of this chapter.

As the project progressed, it became evident that special assistance was required on three issues--instructional methods, evaluation and costs. Dr. Arthur S. Elstein, a medical education specialist from Michigan State University, was employed by the AAMC to provide assistance in instructional methods. He presented his ideas at the Rochester conference and later prepared a paper on the subject, which is presented as Resource Paper No. 7.

With regards to evaluation, a consensus was reached at the Cambridge conference that there was a need to coordinate efforts in curriculum evaluation and to produce, if possible, a core evaluation design based on shared educational objectives in the HMO setting. Dr. Edwin Hutchins, consultant to Penn Urb and a nationally recognized authority in medical education and evaluation, was chosen to head this effort. A small meeting of participants was held in November 1975 to consider the implications of long-term evaluation and to identify evaluation methods or materials suitable for sharing. The result was the development of tentative evaluation instruments presented in Resource Paper No. 9.

To provide assistance in the development of a cost methodology, the AAMC employed, in September 1975, Dr. Christine E. Bishop, a health economist from the Boston University School of Management. Dr. Bishop attended the Cambridge conference but there was not enough time for her to assist the participating institutions who were developing cost data. Instead, Dr. Bishop was asked to develop the conceptual framework for measuring the costs of education in the HMO. The results are presented as Resource Paper No. 14.

Monitoring was accomplished through periodic progress reports and site visits. Each participating institution submitted a work plan and two progress reports and was site visited once by the AAMC staff and members of the project advisory committee

The project received considerable publicity at the AAMC Annual Meeting in November 1975 where project participants organized and presented a symposium entitled Teaching Primary Care in the HMO: Design, Evaluation and Costs. The papers presented at the symposium have been for the most part rewritten and are included among the resource papers in this report.

REFERENCES TO CHAPTER 1

1. MacLeod, Gordon K., M.D., and Jeffrey A. Prussin, M.A., "The Continuing Education of Health Maintenance Organizations," New England Journal of Medicine, March 1, 1973.

2. U.S. Department of Health, Education and Welfare, Public Health Service, Health Service Administration, Bureau of Medical Services, Division of Health Maintenance Organizations, "Health Maintenance Organization Program Status Report: December 1975," DHEW Publication No. (HSA) 76-13022, 1976.

3. U.S. Department of Health, Education and Welfare, Health Services Administration, Bureau of Medical Services, Division of Health Maintenance Organizations, "Preliminary Summary of Unsuccessful HMO Feasibility Grants," Address by George Strumpf prepared for presentation to the Group Health Institute, Denver, Colorado, June 13, 1976.

4. U.S. Department of Health, Education and Welfare, Health Resources Administration, Bureau of Health Resources Development, "Contract for the Planning, Development and Demonstration of Educational Programs for Medical Students and/or Interns and Residents in Prototype Health Maintenance Organizations," Contract No. N01-MB-44009, May 1974.

Appendix 1

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

MEMORANDUM #74-18 June 24, 1974

TO: Council of Deans
Council of Teaching Hospitals

FROM: John A. D. Cooper, M.D., President

SUBJECT: Contract for the Development of Curriculum for Physician Training in HMOs

The Association of American Medical Colleges has been awarded a contract by the Special Program Staff of the Bureau of Health Resources Development, Health Resources Administration, DHEW to support the development of curriculum for physician training in academic medical center related HMOs. This 21-month project is complementary to a previous AAMC project for the development of prototype HMOs which will terminate on June 30, 1974. These endeavors reflect the Association's ongoing effort to promote medical school and teaching hospital involvement in improving the ambulatory health care system of the nation.

Whereas the prototype HMO project focused on the unique aspects of planning and developing an academic medical center related HMO, this BHRD contract will allow the AAMC to stimulate the planning and development of curriculum for training physicians in the HMO setting. If HMOs are to expand and become a viable alternative system of health care, appropriately trained manpower must be available. Without the necessary personnel, even existing HMOs may be unable to expand their enrollment to meet demand.

Within the framework of this project, the Association will work closely with six (6) selected institutions by providing technical assistance, centralized coordination and limited support funds to develop educational programs (with major emphasis on primary, continuing, comprehensive care) which would train physicians to function effectively in HMOs. The principal objective of the BHRD contract is to assist in developing curriculum for medical students or house staff that are based upon and oriented towards medical practice requirements of HMOs. As stated in the BHRD contract, the primary requirement for participating institutions should be the development of a plan including a curriculum for the establishment of an education-training program for medical students or interns and residents which utilizes as a primary learning tool an HMO which the university health science center sponsors or with which it has formal affiliation. This effort will hopefully establish a mutually beneficial relationship between the HMO and the medical school/teaching hospital for purposes of clinical education as well as patient care.

If you would like to have your institution considered for participation in this project, please submit a proposal of no more than twenty pages which should include but not be limited to:

a. Definition of primary care.

b. Description of institutional activities in primary care education.

c. Educational objectives of the proposed curriculum, taking into consideration the desired end results in terms of students' skills, attitudes and knowledge. Basic elements of such a curriculum should include: patients, students, faculty and setting.

d. Description of the process for developing an appropriate curriculum for training medical students or house staff in an HMO setting.

e. Realistic plans for implementing the curriculum.

f. A plan to develop criteria for selection of medical students and house staff who elect to train in the HMO setting.

g. Evidence of a relationship between your institution and an operational or nearly operational HMO (including a description of the HMO). In case of affiliation with an HMO, please include a letter of support from the Executive Director and the Medical Director of the HMO.

h. Institutional resources and capabilities available for developing such a curriculum.

i. A budget.

The AAMC has established a project advisory committee that will select the six participating institutions. It is anticipated that participating institutions would receive up to $40,000 to develop its proposed curriculum during the period January 1 through December 31, 1975. The BHRD stipulates that institutions must meet the following basic requirements in order to be eligible for consideration.

1. Each participating institution shall include a university sponsored or affiliated HMO.

2. Preference in consideration will be given to programs whose HMO service component is operational or nearly operational.

3. The curriculum to be developed must be directed primarily at medical students or house staff.

4. Proposals should include the development of a process for relating medical student and house staff HMO education and training experiences to career selection.

Following the selection of the six participating institutions, negotiations will be undertaken on the amount and type of support that can be provided under the contract.

If your institution wishes to participate in this project, you should send your proposal to:

James I. Hudson, M.D.
Director, Department of Health Services
Association of American Medical Colleges
One Dupont Circle, N.W., Suite 200
Washington, D.C. 20036

Neither the AAMC nor the BHRD is under any obligation to award a contract on the basis of any proposal submission or otherwise pay the costs incidental to the preparation of proposals.

As a condition of participation, institutions may not include more than 8% of total direct costs as "overhead" or indirect costs in their budgets. We are also asking that you identify, by name, in your proposal the following individuals who will be relating to your HMO educational development program (if selected for participation):

1. Project Director
2. Fiscal officer for the project
3. Institutional contracting officer

Proposals should be postmarked by Friday, August 2, 1974.

If you have any questions, please do not hesitate to call Dr. Hudson (202/466-5131) or Ms. Lily O. Engstrom (202/466-5118).

Appendix 2

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

together with the

UNIVERSITY OF ROCHESTER

and the Medical Group of the

GENESEE VALLEY GROUP HEALTH ASSOCIATION

Present a Conference for Participants in the Project to

DEVELOP CURRICULUM FOR PHYSICIAN TRAINING IN HMOS

in

Rochester, New York

Thursday and Friday, March 13 and 14, 1975

AGENDA

Appendix 2 (continued)

Thursday, March 13, The Anderson Room, Medical Education Building (S-Wing)
University Medical Center, University of Rochester

10:00 AM	WELCOMING REMARKS	Dean Orbison; Dr. Hudson
10:10 AM	OVERVIEW -	Mr. Infeld
10:20 AM	PRESENTATION OF PROJECT WORK PLANS *Limited to 15 minutes per presentation. A question and answer period will follow each presentation*	Project Directors
12:30 PM	Luncheon. *Served in private room one flight above the Anderson Room*	
1:30 PM	EDUCATIONAL METHODS AND EVALUATION IN THE HMO *Panelists: Dr. Arthur Elstein, Moderator* *Dr. Paul Grover* *Mr. John Simon*	Reactor Panel
3:00 PM	IMPACT OF PROPOSED MANPOWER LEGISLATION ON HMO TEACHING PROGRAMS *Question and Answer Period*	Mr. Bowsher
4:00 PM	Coffee Break	
4:15 PM	A MODEL FOR PRIMARY CARE RESIDENCY TRAINING *Question and Answer Period*	Dr. Boufford
5:15 PM	The Happy Hour. *Cocktails at the Chancellor's Dining Room, University Faculty Club, Douglas Building, River Campus*	
6:30 - 8:00 PM	Dinner *(same place as above)*	

Friday, March 14, The Genesee Valley Group Health Association (GVGHA),
Joseph C. Wilson Health Center, 800 Carter Street, Rochester, New York

9:00 AM	GVGHA'S TEACHING PROGRAMS FOR HOUSE STAFF AND NURSE CLINICIANS: OVERVIEW AND ANALYSIS *Question and Answer Period*	Dr. Gardner
10:15 AM	HMO TEACHING PROGRAMS: COST FINDING METHODS *Question and Answer Period*	Dr. Gilson; Dr. Lawrence
11:30 AM	NEXT CONFERENCE *Contract funds are available to hold one additional meeting. Should another meeting be held? Where, when, and for what purposes?*	Participants
12:00 Noon	Guided Tour of the Wilson Center	
12:30 PM	*ADJOURNMENT*	

Appendix 2 (continued)

SECOND CONFERENCE

Project to Develop Curriculum for Physician Training in HMOs

Harvard Faculty Club Building
Harvard University Campus, 20 Quincy Street
Cambridge, Massachusetts

September 29-30, 1975

Monday, September 29

8:30 A.M.	Introductions -	*J. Hudson, M. Infeld*
	Workshop I. CURRICULUM CONTENT AND DESIGN	
	Moderator:	*S. Bosch*
	Facilitators:	*J. Simon, H. Gardner*
Noon	Siesta	
2:30 - 5:30 P.M.	Workshop II. COST METHODOLOGIES	
	Undergraduate Level:	*G. Pawlson*
	Graduate Level:	*R. Lawrence, R. Watkins*

Tuesday, September 30

8:30 A.M.	Workshop III. APPROACHES TO CURRICULUM EVALUATION	
	Facilitators:	*P. Grover, M. Ravitch*
11:30 A.M.	FINAL REPORT - Objectives, Content, Format	*M. Infeld*
1:00 P.M.	Adjournment	

Chapter 2

GEORGETOWN UNIVERSITY
and
GEORGETOWN UNIVERSITY COMMUNITY HEALTH PLAN (GUCHP)

The Georgetown group's major achievements were: (1) the development of a unique curriculum planning process; (2) the preparation of an HMO manual; (3) designing and implementing a preceptor training program; and (4) preparing a manual for the preceptor training program. Items 2 and 4 are presented under separate covers as Resource Papers 2 and 7. The study was conducted by the medical school's Department of Community Medicine and International Health with the collaboration of the GUCHP medical staff and three sophomore medical students.

BACKGROUND

Georgetown University's medical school is part of a larger Health Sciences Center which includes a teaching hospital, a dental school, and a school of nursing. In 1971 the medical school implemented a major curriculum revision and thereafter rapidly increased the size of the entering class to its current level of 205 students. The resulting stress placed upon teaching resources, particularly in ambulatory care, motivated the medical school to establish a health maintenance organization, the Georgetown University Community Health Plan (GUCHP). In fact, GUCHP, which was initiated by the Department of Community Medicine and International Health (DCMIH), was authorized by the medical school with the understanding that the HMO would provide a resource for primary care education and research.

GUCHP is a pre-paid group practice type HMO which opened for services in November 1972. Although it is legally an independent corporate entity, most of the members of the board of directors are appointed by the University President, and the Chancellor of the Medical Center serves as Chairman of the Board, while the Dean serves as Vice-Chairman. GUCHP presently serves over 20,000 "pre-paid" enrollees and an additional 6,000 "fee-for-service" patients in three primary care facilities in the Washington metropolitan area. One center is located in Reston, Virginia and serves a predominantly white upper middle class population; the second center, located in Edgewood Terrace Housing Complex in Northeast Washington, serves a predominantly black, low and moderate income population; and the third center in Kensington, Maryland, serves a relatively stable suburban middle class community in the greater Washington area. Each center utilizes a local community hospital for general inpatient care and Georgetown University Hospital for tertiary care.

GUCHP was heavily involved in education even prior to the initiation of this project. Educational experiences at GUCHP included a 6-month field training for two physician assistant students from Northeastern University (both were later hired by GUCHP); a physician assistant training program for pre-medical and first year medical students; a six-week elective clerkship in primary care; and rotation of senior psychiatric residents under the supervision of the faculty of the Department of Psychiatry. However, these educational experiences were offered unrelated to each other, without an overall curriculum plan or mechanisms for evaluation. Hence, Georgetown's initial objective was not so much the construction of a curriculum, but rather the development of a rational curriculum planning process, as it indicated in its final report to the AAMC:

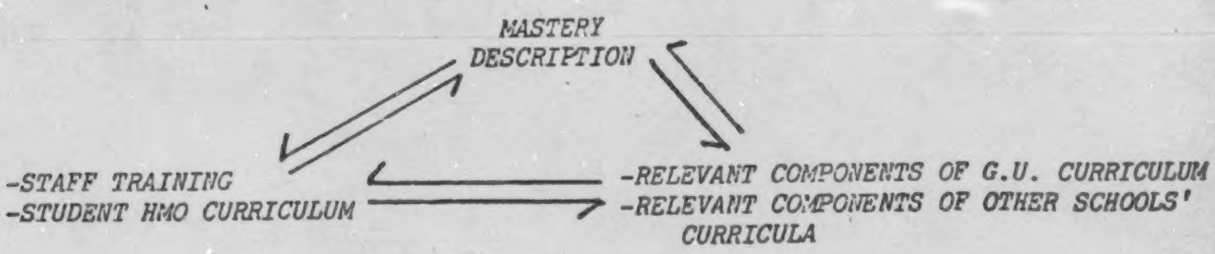
> "If you think you're confused, consider poor Columbus.
> He didn't know where he was going! When he got there,
> he didn't know where he was. And when he got back,
> he didn't know where he'd been."
> Anonymous

> In many ways, the task of curriculum building for physician training in health maintenance organizations is similar to the experience of Columbus. There are groups of doubters, there is a dearth of funds, and the waters are uncharted. A major outcome of our project has been a mapping of where we are going. As a result, when we get there we will know where we are and with the use of evaluation, know where we have been. In essence, the major accomplishment of our project has been to establish a curriculum planning process, rather than a finalized, polished, discrete set of courses.

THE CURRICULUM PLANNING PROCESS

The curriculum planning process developed by the Georgetown group is based on an analysis of the skills, knowledge and attitudes required by competent practitioners in the HMO setting. Since a comprehensive, functional analysis of physician performance in HMOs was beyond the scope of this project, an abbreviated approach, represented in the schematic diagram below, was developed. The ultimate result of this approach is a list, or "mastery description," of professional responsibilities which the competent practitioner has "mastered," or should have mastered. These are then converted to educational objectives which the student must master or gain competence in. The process involves the five steps defined in the schematic diagram. A description of their implementation at Georgetown is presented below.

SCHEMATIC REPRESENTATION OF DYNAMIC CURRICULUM PLANNING PROCESS


MASTERY DESCRIPTION
-STAFF TRAINING
-STUDENT HMO CURRICULUM
-RELEVANT COMPONENTS OF G.U. CURRICULUM
-RELEVANT COMPONENTS OF OTHER SCHOOLS' CURRICULA

DOUBLE ARROWS:	indicates a one-to-one relationship
MASTERY DESCRIPTION:	a list of professional tasks or responsibilities that a competent primary care practitioner must master
STAFF TRAINING:	the identification of such tasks or responsibilities currently missing from our HMO primary care practitioners and training of staff in these areas
HMO CURRICULUM:	the educational objectives and instructional activities derived from the mastery description as modified by
G.U. CURRICULUM:	what is relevant and already learned somewhere else in the Georgetown curriculum complemented with
OTHER CURRICULA:	successful and relevant educational opportunities implemented by other schools

Source: The Georgetown University final report, December 1975.

a. Mastery Description - The object is to obtain a list of professional tasks or responsibilities unique to primary care practice in the HMO, by involving in the process all parties concerned: the practitioners (physicians and nurses), the recipients (patients), and the students (medical and nursing students) of primary care.

Three medical and three nursing students were hired for the summer to conduct interviews with GUCHP physicians, nurses[*] and patients. A team of one medical and one nursing student was assigned to each of the three GUCHP centers. After an intensive literature search, the students prepared an initial list of physician and nurse professional competencies and then interviewed physicians, nurses and patients, using the questionnaires presented at the conclusion of this chapter as Appendices 3 and 4. Initial analysis of the data indicated a need not only for a student guide and a preceptor training program but also for teaching experiences in telephone medicine; developing a good "chairside" manner; and a primary care team clerkship. Further work on the mastery list has been temporarily discontinued, but the study staff hopes to resume their efforts as the value of such a process gains added support within the medical school.

b. Staff Training - The physician interviews helped in identifying a need for a training program to develop the teaching skills of the clinical staff. Since the development of such a program was not within the scope of the original study design, Georgetown University requested and obtained AAMC and DHEW approval to extend the project for six months, to June 1976. On the basis of the assumptions presented below, Georgetown University implemented a six-hour Preceptor Preparation Course for 12 GUCHP staff physicians. The materials prepared for the course have been organized as a manual entitled A Role Guide and Resource Book for Clinical Preceptors, and is presented as Resource Paper 7 under separate cover.

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[*] The nursing component was funded by another agency and concerned multi-disciplinary training of medical and nursing students in primary care teams.

ASSUMPTIONS OF PRECEPTOR PREPARATION PROGRAM

- HMO physicians are usually recruited and hired for their clinical competencies, not their teaching abilities.
- Teaching skills are not necessarily innate, but rather can be learned.
- HMO physicians who act as instructors must be oriented to the overall goals and approach of the educational program.
- Approaches for student learning in the HMO (based on the requirement of provider productivity and consumer voice in management) will require methods of instruction unfamiliar to the traditionally trained physician.
- There are a variety of teaching roles and responsibilities HMO preceptors can and must fulfill if a well-planned curriculum is to be successfully implemented.

Source: Georgetown University final report, December 1975.

c. Curriculum Development - The first step in curriculum development was the offering of an experimental course entitled A Practical Introduction to HMOs. Designed for testing teaching materials, instructional methods and preceptor-student interrelationships, the course involved didactic sessions, guest speakers, field visits to local HMOs, and research projects under the supervision of GUCHP staff. A major result of the course was the development of A Medical Student's Guide to Health Maintenance Organizations, presented under separate cover as Resource Paper 2. The 50-page guide, designed by medical students for medical students, describes the nature of HMOs and presents the major issues affecting HMOs today. Of particular value are the self-assessment and group discussion questions included in each chapter. The guide is already being used by several institutions including a medical society group.

d. Relevant Components of Medical School Curriculum - The four-year G.U. medical curriculum was examined for primary care-ambulatory care experiences presently offered so as to avoid duplication.

e. Relevant Curricula from Other Medical Schools - This involved a review of published literature from other schools and continual communication with the other institutions participating in this project.

Appendix 3

STAFF INTERVIEW FORM

Center ____________

Education and Experience Background

1. What field was your training in?

(M.D.): Residency Field: ____

(R.N.): A.D. ______________ Diploma ____________ B.S.N. __________

M.S. ______________

Nurse Practitioner Field _________________________________

M.D.: Are you Board eligible? Yes ____ No ____

Are you Board certified? Yes ____ No ____

R.N.: Are you certified as a nurse practitioner? Yes ____ No ____

2. What kind of patient care practice have you been in since the end of your formal training?

Solo ____ Hospital ____ Military ____ Group ____

HMO ____ Clincial or Neighborhood Health Center ____

For how long? ____________________

Type of patients:

Adult ____ Adolescent ____ Geriatric ____ Child ____

Family ____ Other _____

Relationship with GUCHP

3. How long have you worked for GUCHP? ___________________

4. What made you decide to come to work for GUCHP? ______________________

____

5. How do you define primary care?

6. (a) What do you find satisfying in working in primary care?

(b) What do you find unsatisfying in working in primary care?

7. Could you compare working in this HMO setting with your previous health care settings in relation to:

(a) how is primary care different?

(b) how is the HMO setting different?

8. Do you see a difference in the health care needs of clients in the HMO setting from those in your previous experience?

   Do you feel that enrollees abuse the health care services because of the prepaid nature of the practice?

9. What kinds of things do you do in the health center?

10. Are there any tasks you would like to be freed from doing in order to use your training more fully?

11. Do you have professional skills you feel you should be using that you aren't employing?

12. Do you use POMRs? Yes ____ No ____

    If you're using some variation could you explain it and why you prefer it?

    Were you instructed in the use and preparation of GUCHP medical records?

    Yes ____ No ____ Where: ________________ When: ________________

    by Whom: ________________________

13. Do you feel you have enough time to spend with each client?

    Yes ____ No ____

    How would you spend the extra time if it were available?

14. Is there anything else that would facilitate your provision of services to your clients?

15. How do you think patients feel about the care they get here?

16. Who is responsible for educating individual patients in coping with their health problems? Why?

17. How do you handle follow-up?

18. What preventive care do you provide?

19. Do you think the quality of care is affected if a client sees different team members each time? Yes ____ No ____ If so, how?

20. What kinds of things have you encountered in primary care practice that your education didn't prepare you for?

    eg. Patient management skills:
    Telephoning:
    Counseling:
    Physical Assessment:
    Supervisory skills:
    Relating to other professionals:
    Interviewing ambulatory patients:
    Teaching students:

Role Perception

21. How do you view your own role in this setting?

22. What do you see as the nurse practitioner's/doctor's role on your team?

23. What do you feel are the most important factors which influence your role relationship with the physician/nurse?

24. How are the roles different from your previous experiences and relationships?

25. Do you see an overlap between the nurse practitioner and M.D. responsibilities? Yes ____ No ____ If yes, where do you see this?

    What is your opinion of it?

26. Do you have any supervisory responsibilities? Yes ____ No ____ What are they?

27. To whom are you responsible?

28. Who is responsible for managing the center on a day-to-day basis?

29. Who decides which patients are seen by you?

30. Who determines the lengths of appts. and how many patients will be seen each day?

31. How are you affected by these decisions?

32. Do you have any professional relationships with the other GUCHP centers? Yes ____ No ____

    If so, what?
    If no, is there a need for this? Why?

33. How do you, as a provider, perceive your relationship with the McArthur office?

Appendix 4

PATIENT INTERVIEW FORM

Center ________ Day ________ Patient ________ Sex ______

Interviewer ________ Time ________ Adult _____ Parent of Child _____

Adolescent _____

PRE-VISIT INTERVIEW

Introduction

Explanation

1. Is this your first visit to the Health Center? Yes ____ No ____
2. How long have you been coming to the Health Center?
3. How many times have you visited before?
4. If you feel comfortable in answering, what brought you to the Health Center today?
5. Do you know who you're scheduled to see today? Yes ____ No ____
6. Is this the person you've seen on your past visits? Yes ____ No ____

   Who do you regularly see? Doctor ____ Nurse ____ Other ____
7. Do you like being able to see the same person? Yes ____ No ____
8. What do you want to happen during your visit today?
9. Do you have any questions on your mind you want to ask the doctor or nurse today? Yes ____ No ____

POST-VISIT INTERVIEW

1. Was your visit with the doctor ____ or nurse ____ ?
2. Was this the same person you've seen before? Yes ____ No ____
3. What things were satisfying about your visit with the doctor/nurse?
4. What things were not satisfying about your visit with the doctor/nurse?

   Generally when you come does ____________ happen?
5. Can you think of anything else the doctor/nurse could have done to improve your visit?
6. Do you feel you had enough time with the doctor/nurse today?
7. Did you get all your questions answered? Yes ____ No ____
   Did you ask all your questions? Yes ____ No ____

Chapter 3

UNIVERSITY OF ROCHESTER SCHOOL OF MEDICINE AND DENTISTRY

and

THE GENESEE VALLEY GROUP HEALTH ASSOCIATION (GVGHA)

Although the University of Rochester group dealt with each of the three major components of the project (curriculum content, evaluation and costs), it devoted most of its energies to evaluation. Two papers, one of which has been published in the Journal of Medical Education, were prepared on the subject. The group designed, implemented and evaluated an HMO-based curriculum for first-year medical students. It is presently in the process of conducting similar efforts for a course for fourth-year students. The project was conducted jointly by the medical school and HMO under the direction of the Associate Dean for Medical Education.

BACKGROUND

In recent years the University of Rochester medical school has placed increasing emphasis on primary care in its curriculum. An ambulatory care experience, either at the University's Strong Memorial Hospital or in other extramural ambulatory care settings, is now required of all fourth-year students. The Division of Family Medicine now offers three electives for pre-clinical students and the Department of Preventive Medicine and Community Health offers a wide-ranging first-year elective entitled Introduction to Preventive Medicine and Community Medicine, in which students are placed in community health facilities. One of these facilities is the Joseph E. Wilson Center of The Genesee Valley Group Health Association (GVGHA).

GVGHA was one of the first successful HMOs sponsored by Blue Cross.

Located in an attractive 52,000-square-foot facility, it opened for services in August 1973 and rapidly increased its enrollment to its present 20,300 members. An additional 2,000 persons are served on a fee-for-service basis. GVGHA has no formal ties with the medical school nor was the latter involved in its development. The two institutions have cooperated in the educational arena, however, even prior to the initiation of this project. Within the first year of its existence the HMO was host to medical and nursing students participating in a medical school sponsored elective, and several fourth-year medical students took an ambulatory care elective there.

The two institutions work well together. The HMO team, consisting of the medical director and staff physicians, was responsible for curriculum content and design while the medical school was primarily concerned with the evaluation component.

THE CURRICULUM

The AAMC project provided the two institutions an opportunity to develop a rational approach for introducing education to the HMO and evaluating the results. An ideal course for this purpose was the preventive medicine course mentioned above for it enabled the evaluator not only to evaluate the student before and after the course, but to compare him with students assigned to other institutions.

The stated goals of the introductory course in preventive and community medicine were that students learn about the role and responsibilities of primary care physicians in prevention; the relationship between availability, accessibility, cost, and quality of care; the incidence, magnitude and severity of a health problem; and the psychological, political, economic and social relationship to illness and the delivery of health services. Each student was assigned to a health or social service institution for one-half day per week for fourteen weeks. Participating institutions included institutions such as the Association for Retarded Children, an inter-city neighborhood health center, Planned Parenthood, a venereal disease clinic, a family court, and GVGHA. Students met for a series of seven lecture-seminars and combined exercises called "recall" sessions.

A total of twelve students chose to be placed at GVGHA in the spring semester of 1975. It was for these students that a curriculum was constructed, field tested and evaluated. Aside from the overall course objectives, the study group defined additional objectives for the students assigned to GVGHA. They included learning HMO concepts and changing attitudes concerning primary care and HMO practice. A detailed list of the cognitive and affective objectives as well as other components of the curriculum are presented in Resource Paper 3.

The students met at the Wilson Center one-half day per week for fourteen weeks, with each session divided into three parts. The first 45 minutes were devoted to one-to-one interviews between the student and a department head. By the end of the semester, each student had personally interviewed the chiefs of the departments of medicine, pediatrics, ob/gyn, eye services, urgent visit clinic/surgery, X-ray, laboratory, business office, pharmacy, and medical records/communications center.

The students then convened for a one-hour seminar to discuss an HMO-related issue or the case history of a student's patient. Most of the seminars were led by the medical director, although occasionally a guest lecturer was invited. The third part of the session consisted of an observation period with a physician preceptor. Three students were assigned to a patient, whom they visited with the preceptor at least once during the course and were responsible for presenting his/her case history. Detailed descriptions of the case histories as well as the seminars are also presented in Resource Paper 3.

EVALUATION

The evaluation design was developed with three major goals in mind: (1) to identify changes in knowledge and attitude; (2) to analyze correlations between demographic/personal characteristics and outcome measures so as to identify possible predictors of cognitive and affective achievements; and (3) to compare the results with control groups.

For comparison purposes, three groups of students, all of whom participated in the community medicine course, were selected. Group 1 consisted of the twelve students based at GVGHA; Group 2, called related, consisted of ten students assigned to other primary care organizations; and Group 3, called non-related, was made up of students assigned to community agencies not involved in primary care.

Knowledge and attitudes were tested with two pre-post tests, presented as Parts A and B of Resource Paper 12, and through semi-structured interviews with an evaluator. The personal characteristics assessed for correlation included sex, hometown size, physician parentage, undergraduate major, Medical College Admission Test (MCAT) score and the Edwards Personal

Preference Schedule which measures fifteen normal personality characteristics. At the completion of the course, all 33 students completed an activity summary and a course evaluation form, also presented in Resource Paper 12. To complement and validate the sources of evaluative information, the evaluator attended all seminars, conducted interviews, and observed student/patient interactions. A detailed description of the evaluation methodology is presented in Resource Papers 10 and 11, entitled An HMO Based Primary Care Curriculum for First Year Medical Students - Design, Evaluation and Discussion, and Issues and Methods in Curriculum Evaluation, respectively. The latter was published in the December 1975 issue of the Journal of Medical Education, and the former was recently submitted for publication in the same journal.

Using a variety of sophisticated statistical techniques, the evaluator found that there were few significant differences between pre and post test scores within a group or among the three groups. As anticipated, the GVGHA-based students made considerable progress in their knowledge of and attitude towards HMOs; but the experience did not produce any great shift in individual career plans. The career choice results showed an overall general trend among all groups towards various forms of primary care. An analysis of the student activity forms indicated that the GVGHA group had more patient and provider contact than the control groups.

COSTS

A consultant to GVGHA conducted a cost analysis and determined that the course costs GVGHA a total of $1,880, or approximately $157 per student per semester. The costs include the extra staff time needed for student teaching, but excludes overhead and space costs. Space costs were not included because the conference room used for the seminars is not presently used to capacity.

To determine the extra staff time needed for teaching, sample studies were conducted in the Pediatrics Department and the Urgent Visit Clinic. Preliminary data indicated that students caused little disruption in patient care. For example, in the Urgent Visit Clinic it took 140 minutes to see 9 patients without students present and 144 minutes with students present; in the Pediatrics Department it took 43 minutes to see 5 patients without students and 51 minutes to see a comparable set of patients with students present.

Chapter 4

UNIVERSITY OF PENNSYLVANIA and PENN URBAN HEALTH MAINTENANCE ORGANIZATION (PENN URB)

The major accomplishments of the University of Pennsylvania group, described in the enclosed resource papers, include the development of a unique iterative curriculum planning process involving educators, clinicians, and other professionals; the preparation of curriculum modules; the design of an evaluation methodology and related instruments; and field-testing of the curriculum and evaluation instruments. The curriculum development process developed by the group is described in Resource Paper 1, entitled Designing a Curriculum in a Clinical Setting: An Iterative Process; the curriculum itself is presented as Resource Paper 4, and the evaluation methodology together with evaluation instruments are presented as Resource Paper 9. Since these papers aptly present the group's achievements, this chapter is brief.

Penn Urb is a multi-disciplinary primary care center sponsored and supported by the University of Pennsylvania, although it is legally a separate entity. It opened for services in 1974 in a small (5,500 square feet) renovated facility and presently provides 18,000 patient visits per year on a pre-paid capitation and fee-for-service basis.

The project was managed by Penn Urb under the direction of its medical director and with the active participation of the entire professional staff. Day-to-day project activities were coordinated by a medical educator.

◆

Both the curriculum development process employed by the U.P. group and the curriculum they designed were unique in several respects. The development process involved educators and clinicians and the entire professional staff of Penn Urb. From the beginning the curriculum was designed in modular form so that any module could be added to existing courses or, for that matter, removed from the curriculum if taught elsewhere.

The modules cover virtually all concepts that one can learn in an HMO. They include:

- primary and comprehensive care
- the health care team
- consumer participation
- quality of care
- economics of HMOs
- change and innovation

A task force consisting of at least one educator and one provider was established for each issue with responsibility for defining behavioral objectives, recommending methods of instruction, developing a bibliography and identifying prerequisites. The curriculum development process is described in detail in Resource Paper 1, and the curriculum itself is presented in Resource Paper 4.

The curriculum was offered as a field test in an inter-session course entitled Introduction to Comprehensive Health Care Systems. The course is an intensive one-week, 35 contact-hour experience offered to medical, nursing, allied health professions, health care administration, and social work students twice a year during inter-sessions. Sections of the curriculum were also field-tested with one medical student who clerked at Penn Urb one session per day for four weeks.

To assess the effectiveness of the curriculum, a series of evaluation instruments were designed and field tested in the inter-session course. As indicated in Resource Paper No. 9, Report of Efforts to Develop a Standardized Test of Knowledge and Attitudes Relevant to the HMO Setting, the evaluation methodology and related tools were designed for applicability in other HMO settings. Although this effort was organized by the Penn Urb staff, the other institutions participating in the project also contributed to its development.

Chapter 5

THE UNIVERSITY OF WASHINGTON
and
GROUP HEALTH COOPERATIVE OF PUGET SOUND (GHCPS)

A unique feature of Group Health has been its involvement in student education almost since its inception 30 years ago. Training programs for medical students and residents had been operating at Group Health several years prior to the initiation of this project. Hence, one of the first tasks was to review and assess these programs, and more importantly, to attempt to determine their costs. The major accomplishment of this project included a survey of existing medical student courses; the development of a curriculum for a third-year clerkship; the preparation of an integrated set of evaluation instruments; and the initiation of a cost study.

BACKGROUND

In the past ten years the University of Washington has been increasingly focusing its attention on the problem of maldistribution of medical resources and the training of primary care physicians. A major curriculum revision took place in 1968 and the Department of Family Medicine was established in 1971. More recently the University became a regional center in medical education by establishing the WAMI program -- academic sites in the states of Washington, Alaska, Montana, and Idaho, devoted to primary care service and training.

The outcome of these efforts has been that more than half of the graduating medical students are entering primary care training programs, and the entering class has been increased from 85 to 175 students. As a result, the medical school has found itself in need of additional clinical training sites in primary care. Group Health Cooperative of Puget Sound, with its strong orientation towards primary care, represents an important clinical teaching resource.

Group Health is a nonprofit, consumer-owned cooperative established in 1947 and presently serving approximately 200,000 members. It owns and operates nine outpatient facilities and a 300-bed general hospital with a staff of 2,700, including 200 physicians.

Group Health has been involved in student education almost since its inception. Over the years, educational programs have expanded to such a degree that one of the first activities of this project was to identify the extent and scope of education at Group Health. Medical students have been training at Group Health for over 12 years, although the bulk of courses for medical students were not initiated until 3 years ago. The first family practice residency training program was initiated in 1973 with the signing of a Memorandum of Understanding between the University's Department of Family Medicine and Group Health. The Memorandum, presented as Appendix 5 at the end of this chapter, provides for the exchange of family practice residents for training at each other's institution and for medical student teaching at Group Health.

The AAMC-sponsored project was welcomed by the University and Group Health as an opportunity to examine the HMO's role in the education of medical students and to develop, if possible, an integrated, cost-effective curriculum. Specifically, the major objectives of the study were:

- To conduct a survey and evaluate existing medical student courses at Group Health;
- If necessary, to develop a comprehensive curriculum that could be applicable to other HMO settings;
- To develop appropriate evaluation instruments for assessing the curriculum's effectiveness; and
- To examine the costs of medical student teaching at Group Health so that future progress could be designed in a cost-effective manner.

The study was conducted jointly by both institutions, with the medical school's Assistant Dean for Curriculum and Group Health's Director of Medical Education serving as project co-directors. A major role was assigned to educators from the Dean's Office of Research in Medical Education, who provided consultation in research design, curriculum development and evaluation and teaching methodology. Two physicians, one from each institution, collaborated in the cost study.

SURVEY AND EVALUATION OF EXISTING COURSES

The survey of existing courses at Group Health revealed that over 570 students, including students in nursing, public health, medical technology, pharmacy and medical students from 11 institutions were training at Group Health facilities. Of these, 180 were medical students enrolled in seven different courses, as shown in the table on the following page. The first four of these courses were selected for careful study and evaluation. Since there was insufficient time to evaluate all seven courses, only those with the major impact in terms of time commitment, numbers of students, or those offering a unique experience to medical students were chosen for investigation.

Prior to the initiation of this study, the University already had a well established evaluation system for many courses in the medical school and at Group Health. Such an evaluation system typically included three components:

(1) Evaluation of the course - by students, faculty and a course committee.

(2) Evaluation of faculty - by students, course committee and faculty self-ratings.

(3) Evaluation of student performance - by the preceptors, patients and student self-ratings.

As part of this study, the evaluation systems of the four courses were also investigated to assess their effectiveness and identify possible problems or flaws.

The reassessment indicated that the courses provided students with a useful primary care experience and that students and faculty alike were pleased with the experience. It should be pointed out that the courses

UNIVERSITY OF WASHINGTON
MEDICAL STUDENT TEACHING AT GROUP HEALTH

Course	Med student year	GHC Department	Length of Association (years)	Number of students per session	Time involved for each student	Total number of students in past year	# days/yr students at Group Health x # of students*
Family Med 401*[3]	1	Outpt - FP	3	0-6/quarter	1/2 day/wk/quarter	12	66
Family Med 420*[3] 421 422	2	Outpt - FP	1	3-4/year	1/2 day/wk/e qtrs.	4*[1]	60
Radiology 493*[4]	3	Radiology	4	0-4/month	1 day every 2 wks for 4-6 weeks	16	32
HuBio 413*[3] 422 435	1	Hospital	2	124/quarter	2-3 1/2 days/quarter for 3 quarters	124	372
Ob-Gyn 465*[5]	3-4	Ob-Gyn	1	3/4 weeks	4 weeks - 8 sessions/ quarter	18	360
Peds 401*[3] 465*[5] 493*[4]	3-4	Peds	12	0-2	varies: 1/2 day/wk - 1 quarter 5 days/wk - 4 weeks 5 days/wk - 1 week	5	25
Health Services 531*[3]	1-4	HS 531	3	0-2 years	variable amount of time at Group Health	2	---

NOTE: *[1] 1 student only present for 2 quarters.

*[2] This is a crude attempt to measure quantitative impact (i.e., 1000 = 10 students present for 100 days or 100 students present for ten days).

*[3] See Appendix B - 401 - Introductory

*[4] 493 denotes 4th year electives in clinical or lab medicine

*[5] 465 denoted basic clerkship in ob-gyn, med, etc. (3rd - 4th year).

were not designed to teach the unique features of HMO practice, but rather to provide a primary care experience. Since the courses have been offered for some time and will be continued in the future, they are described below in some detail.

1. Introduction to Clinical Medicine (Human Biology 413, 422 and 435). These three sequential courses, each one quarter of a year in duration, are required of all first year students and are conducted largely at Group Health Hospital. They provide the students with their first exposure to patients and are designed to introduce basic skills in interviewing, history taking and physical examinations. The courses involve didactic, demonstration and experimental techniques, and a series of patient interviews.

   Instructional strategies include an extensive syllabus of printed material covering all aspects of the medical interview; conventional didactic presentations; small group discussions with the preceptors; and an intensive orientation week with lectures, demonstrations, small group discussions, interviews with paid actors, and audio-video tapes for performance evaluation and lecture demonstrations.

   The evaluation system features student-designed and administered questionnaires and extensive student-faculty coordination. During the previous two years, evaluation focused on the adequacy of the course objectives, instructors, and learning resources, and self-ratings of skill and satisfaction. On the whole, the students were highly satisfied with the courses and felt that they were some of the most valuable components of the first year curriculum. Faculty evaluation was also highly favorable and no changes were proposed.

2. Family Medicine Preceptorship (Family Medicine 401). This is a one quarter elective for first year students, in which the student observes a practicing physician one-half day per week and is introduced to concepts of family practice. Approximately 15-25 students elect the course each quarter. During the 1975 winter quarter, six of 25 preceptors were Group Health physicians and eight students were assigned to Group Health facilities. The other preceptors were solo practitioners or physicians practicing in other settings.

The evaluation procedure for this course consists of a brief, open-ended questionnaire in which students evaluate their preceptors, identify positive and negative features of their preceptorship, and provide suggestions for improvement. This provided an opportunity for comparing the results and performance of students at Group Health with those in other settings. An analysis of the student questionnaires, however, indicates that there was little difference in the responses of the two groups.

3. Family Medicine Continuity Clerkship (Family Medicine 420,421, and 422). This new course, offered for the first time in 1974-75, is designed for second year students, most of whom take it for three consecutive quarters.

Students meet with a practicing physician one-half day per week and are given the opportunity to work up and follow selected patients. Site experience is supplemented with weekly university-based lecture/discussions on various aspects of family practice. Of the 24 students taking the course last year, four were assigned to Group Health preceptors. Course objectives include exposing the student to the concept of continuity of care and simple office procedures. Preceptors generally try to guide the student toward clinical practice so that by the end of the course the student functions in this capacity about 50% of the time.

A comprehensive evaluation system was developed for this course utilizing input from students, faculty and patients. The system consists of six components:

(a) Daily activity logs completed by students;

(b) Site visits by preceptors;

(c) An open-ended evaluation questionnaire completed by students;

(d) A student evaluation form completed by the patient;

(e) A productivity impact questionnaire completed by the preceptor for identifying productivity loss and teaching preparation time;

(f) A student performance form completed by the preceptor in which the student is rated on dependability, initiative and interest, ability to communicate with patients, relationships with patients and staff, and competence in eliciting and synthesizing information from patients.

The resulting evaluation data was analyzed to examine differences between the HMO and other settings. It was found that the only significant difference was in productivity loss. Group Health preceptors showed a productivity loss of 62% or 6.2 patients per 3 hour session, while all preceptors (including Group Health preceptors) averaged a productivity loss of 25% or 4 patients per session. Preparation time was also greater with Group Health preceptors who reported an average of 50 minutes per week of preparation, while all preceptors reported an average of 30 minutes. An analysis of the student activity logs revealed that Group Health students saw fewer patients, but tended to receive more intensive exposure and were allowed somewhat greater levels of responsibility.

4. Independent Field Study (Public Health and Community Medicine, PH-CM 531). This is an independent study elective which relies heavily on one to one discussions between student and preceptor. The student and faculty advisor arrange for special projects at community health agencies such as Group Health.

THE PROPOSED CURRICULUM

The University and Group Health held a series of joint workshops to consider the results of the survey, to discuss the University's training needs, and to construct a curriculum best suited to the needs of both institutions. It was decided to develop curriculum for an intermediate clinical clerkship designed for third year students who would spend approximately six weeks full time in the HMO. In addition, it was decided that the major thrust of the curriculum would be on the development of clinical skills and knowledge which could be most effectively and efficiently taught in the HMO but which are not necessarily unique to it. A complete and detailed outline of the course including goals and objectives, instructional methods, and evaluation methods, are presented as Resource Paper 5. While this curriculum was designed primarily for third year clerkships, sections of the curriculum might be used in other existing courses.

Group Health is examining the possibility of offering other clinical courses. A list of approximately 90 courses presently offered by the medical school in other clinical settings has been circulated to Group Health preceptors to identify those courses which can be effectively taught at Group Health.

PROPOSED EVALUATION INSTRUMENTS

In conjunction with the proposed curriculum, a series of evaluation instruments, designed to evaluate the performance of both students and preceptors, were developed and are presented as Resource Paper 13. The author's description of these instruments is presented on the following page.

SUMMARY OF COST STUDY

The proliferation of educational programs and courses at Group Health was a primary motivating factor for undertaking the cost study. In fact, the University had originally proposed to do only a cost study, and to do it

DESCRIPTION OF PROPOSED EVALUATION INSTRUMENTS*

1) Completed by the Student.

Exhibit 1: Student Log Recording Form and Computer Summary Report.
Students will be asked to log patient problems and procedures encountered in the clerkship experience and to submit the logs on a weekly schedule. At the end of the clerkship, the students and preceptors will receive computer-generated summaries of the student's individual experience. A summary report analyzing all student-patient encounter experiences will also be produced. These reports are to be used by the various course committees to assist them in their evaluation of both the course and faculty. They are to be used by the faculty for the purpose of self-evaluation and by the student as a record of accomplishments.

Exhibit 2: Student Progress Report.
Approximately midway through the quarter students will be asked to complete this brief form to help the course committee and preceptors evaluate the course from the students' point of view.

Exhibit 3: Student Course Evaluation.
This form is to be completed by students at the end of the course to evaluate the course's strengths and weaknesses.

Exhibit 4: Student Assessment of Preceptor and Training Site.
This form will also be completed by the student toward the end of the course and is to be used for evaluating the preceptor and training site.

2) Completed by the Preceptor

Exhibit 5: Preceptor Progress Report.
This brief report is to be filled out periodically as an informal method for the course committee to keep abreast of the course from the preceptor's point of view.

Exhibit 6: Course Achievement/Grade Report.
This will be used by the preceptors to rate student performance on each instructional objective and on selected professional attributes. It should serve as the principle medium for documenting student achievement.

3) Completed by the Patient

Exhibit 7: Patient Feedback to Students.
This form provides the means for patients to record their impressions of students and for students to evaluate their own strengths and weaknesses. This form should be used sporadically or in some way mutually determined by preceptors and students. After a few weeks in the office, students in other settings have appreciated the reassurance that has come from patients' positive remarks on these forms.

4) Completed by the Course Committee.

Exhibit 8: Site Visit Report
This form outlines the procedures involved in a site visit by the course administrators to a preceptor's office. Since time may not permit a site visit to each office, they will probably be conducted on a random basis or in response to reported or suspected problems. The visits and reports thereof, are used to facilitate evaluations of the course and the preceptors.

*Source: The University of Washington final report.

for medical students only. However, at the urging of the Project Advisory Committee, the university agreed to expand the project and also include a cost analysis of its family practice residency training program. The study is presented in its entirety as Resource Paper No. 15.

The study presents cost data for the medical student courses described above and for the family practice program. Costs that are easily measured, such as salaries, space, equipment, and supplies, and costs and benefits not so easily measured, such as job satisfaction and impacts on quality of care and enrollment, are discussed. Data was collected by a variety of methods including structured interviews with preceptors, students, administrators and consumers; questionnaires; clinic records; daily activity logs; and a time-motion study. A summary of the data for medical students is presented in the table on the following page. Data for the family practice residency training program is presented in Table V-6 of Resource Paper No. 15. The annual cost of training one resident was found to be approximately $15,000. However, this does not appear to include the value of the resident's services performed in the "coverage" setting. As the authors themselves indicate, this study is preliminary in nature and both the conceptual framework and data need additional refinement.

Cost of Medical Student Teaching
Group Health Cooperative of Puget Sound, Seattle, Washington
1974-1975

Course	Student Level	Student Activity	Number of Students in Course	Cost per Student-day	No. of Student Days* in Year in Course	Total Cost of Course to the HMO
Human Biology 413	1st year	interviewing patients	175 students	0	Not available	0
Family Medicine 401	1st year	observing physician in practice	8	$4.30	50	$225
Family Medicine 420	2nd year	interviewing; patient examinations	4	79.80	59	4,708
Family Medicine (unnumbered)	3rd year	advanced patient examinations	1	53.20	40	2,123
Community Medicine 531		research	1	($10.00) net benefit		

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* No. of students X No. of teaching days

of Washington final report

APPENDIX 5

MEMORANDUM OF UNDERSTANDING

University of Washington School of Medicine
Group Health Cooperative of Puget Sound

Whereas Group Health Cooperative of Puget Sound and the University of Washington School of Medicine share common goals in the education of family physicians and whereas both have already instituted educational programs for family physicians in training, therefore agreement has been reached between the two institutions to share effort and resources in approaching these goals.

Group Health Cooperative is a true consumer cooperative providing a full range of medical services to its members. It recognizes benefits to its members from participation by its professional staff in residency training--and especially in family practice residency training--because its pattern of medical care delivery has depended for many years upon the use of family practice primary care physicians. It provides, therefore, a successful real-life operating model of the new academic medical discipline of family practice.

It should be noted that the following educational efforts already exist at Group Health:

1. A fully approved family practice residency geared to produce two graduates per year.
2. Group Health physicians serve on the volunteer clinical faculty of the medical school.
3. University of Washington medical students on elective family medicine preceptorships are assigned to individual family physicians at Group Health.
4. Physicians from Group Health serve on the Family Physician Pathway Committee of the Medical School and serve as curriculum advisors to students.

Also, the University of Washington School of Medicine already has instituted the following efforts:

1. Topics and concepts of particular relevance to family practice have been included in the basic medical school curriculum.
2. A Family Physician Pathway has been implemented in the clinical curriculum.
3. A Department of Family Medicine with full-time faculty and staff was established in 1971.
4. Clerkships in the discipline, family medicine, have been developed.

5. An accredited Family Practice Residency Program based at the University Hospital began July, 1972.

6. A specially designed Family Medical Center has been built at the University Hospital to serve as a clinical model for the above programs.

The University of Washington, through its School of Medicine, now agrees to provide for Group Health Cooperative of Puget Sound the following:

1. Assistance in obtaining educational opportunities for Group Health family practice residents, particularly in fields not represented at Group Health, such as behavioral and social sciences, certain sub-specialties of medical disciplines, and opportunities for developing exchange arrangements with other family practice residency programs or teaching units affiliated with the University. All formal conferences and lectures developed at the University of Washington for University of Washington family practice residents will be open to Group Health family practice residents.

2. Payment to Group Health is the amount of $20,000 per year, payable in four equal quarterly installments, for purposes of carrying out this mutually beneficial agreement.

Group Health Cooperative of Puget Sound agrees to provide for the University of Washington School of Medicine the following:

1. Opportunities for University of Washington family practice residents to be assigned to Group Health Hospital and Clinics for portions of their training in the unique setting of a prepaid comprehensive group practice.

2. Making available the facilities and resources of Group Health for development of clerkships in family medicine. It is understood that a clerkship of the magnitude of Family Medicine 465 (as now exists in Omak and Grandview, Washington, involving two student positions regularly throughout three of the four quarters each year) is beyond the terms of this agreement, and the development of such clerkships at Group Health Cooperative would be contingent upon additional financial support by the University.

3. A Group Health physician staff member will be appointed as Director of the Family Practice Residency Program at Group Health and will devote at least half time to this position. This physician will be chosen by Group Health subject to the concurrence of the Chairman of the Department of Family Medicine and in accord with the Faculty Code of the University of Washington. He will be appointed to an appropriate faculty title and rank without tenure

in the Department of Family Medicine. He will be a member of the medical staff at Group Health with the usual rights, privileges, obligations and fringe benefits that accompany that status. He will be responsible through the Director of Medical Education and Education Committee to the medical staff of Group Health. As a member of the faculty of the Department of Family Medicine of the University, he will be responsible to the chairman of that department and serve in his faculty position at the pleasure of that chairman and in accordance with University rules and regulations. He will be expected to participate in teaching and administrative functions of the department consistent with the departmental objectives for family practice education.

4. Agreement that rules and regulations of the University will apply to the faculty member based at Group Health except where a mutually agreed-upon exception is made, and that these will likewise apply to Group Health residents when they are at the University. Similarly, residents from the University will abide by Group Health rules and regulations when they are participating at Group Health. Each principal will, however, continue its full support of its own residents, including fringe benefits and malpractice coverage, without interruption while their residents are serving in a mutually approved activity at the other institution.

University faculty will be expected to provide equivalent training to residents fr Group Health, and faculty-staff at Group Health will do likewise for University residents at Group Health, as each provides for its own. Each will endeavor to make available to the other's residents the unique training opportunities each can offer, and do so on an approximately equal exchange basis. Respective faculty shall also be permitted to participate in staff activities at the other institution where that participation is appropriate to their teaching function.

This cooperative activity between Group Health and the Department of Family Medicine will affect other departments in the University and Medical School only insofar as residents from Group Health will share the same opportunities for training experiences offered by other departments as is open to the Medical School's own residents in family practice.

This agreement becomes effective upon the below written date. The Chairman of the Department of Family Medicine and the Director of Medical Education at Group Health shall review this agreement prior to each anniversary date and submit a joint report, or if indicated separate reports, to both principals. The report shall comment on:

- general results of the collaboration and suggested additions or deletion from the agreement,

- numbers of residents from each institution who have been involved with the other institution's program,

- an estimate of the value of these interchanges to the residents and to each institution,

- new directions the collaboration might take.

Either party may terminate this agreement upon at least nine-months' prior written notice.

Effective Date: January 1, 1973

For the University of Washington:

M.D.
Chairman, Department of Family Medicine

Robert L Van Citters
Dean, School of Medicine

E. M. Conrad 1/22/73
Ernest M. Conrad, Vice President for Business & Finance

For Group Health Cooperative of Puget Sound:

John E. Gilson MD
Director of Medical Education

MD
Chief of Medical Staff

President, Board of Trustees

Date: ______________________

Chapter 6

BROWN UNIVERSITY

and

RHODE ISLAND GROUP HEALTH ASSOCIATION (RIGHA)

Brown's major achievement was the development and field-testing of a curriculum for the RIGHA component of a mandatory* course in community medicine. Plans are also in progress for initiating innovative elective courses at RIGHA. The project was managed primarily by the Section on Community Health at Brown University and the RIGHA staff.

BACKGROUND

A two-year Master's Program in Medicine initiated at Brown University in 1963 became a four-year medical school ten years later and graduated its first M.D. class in 1975. The medical school is unique in several respects. First, it offers a medical curriculum conducted as a program rather than an independent school or faculty. Second, the program admits most of its students to a seven-year curriculum. Finally, it was planned from the beginning to rely on community-based teaching facilities. Having no teaching facilities of its own, the University has entered into affiliation with local community hospitals and other health care institutions. One such institution is the Rhode Island Group Health Association (RIGHA).

RIGHA is a labor-sponsored, community-based pre-paid group practice plan which opened in May 1971. It is located on the grounds of a local community hospital (Our Lady of Fatima Hospital) in a 13,000-square-foot, converted laundry facility. Additional office space is located in the hospital. As of December 1975, it had an enrollment of 15,000 members and served an additional 2,000 persons on a fee-for-service basis. RIGHA is partly supported by loans and grants from HEW and the Prudential Life Insurance Company. In 1973, facing severe financial difficulties, RIGHA entered into a management service contract with Prudential. Prudential now operates the HMO and is represented on its Board of Directors together with representatives of organized labor and the public sector. In November 1975, RIGHA became one of the first HMOs to be certified under the HMO Act of 1973.

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*Brown University is the only one among the institutions participating in this project in which student experience in an HMO was mandatory.

RIGHA's interest in education dates back to 1973 when it signed a Memorandum of Association with the University (see Appendix 6). It views teaching as a learning experience for the preceptor as well as the student and believes it is a positive factor in recruiting top quality medical staff. The first educational experience at RIGHA occurred in early 1974 when several clinical students spent a week there on an experimental basis. However, no program had been prepared for this purpose. The AAMC program was viewed as an opportunity to design a well-planned and rational curriculum for teaching medical students in the HMO setting.

THE RIGHA ROTATION IN THE COMMUNITY HEALTH CLERKSHIP

In the initial planning of the clinical curriculum, no specific provision was made for the teaching of primary care. The clinical curriculum consists of 48 weeks of required core clerkships (internal medicine, 12 weeks;

surgery, 12 weeks; pediatrics, obstetrics, psychiatry and community health, 6 weeks each), 10 weeks of "selected" clerkships, and 24 weeks of open electives. When it became apparent that the major clinical disciplines were planning to use their core clerkships for the teaching of inpatient aspects of medicine, the **section** on community health resolved to make the teaching of primary care one of its major objectives.

The clinical student's major experiences in primary care are embodied in the Core Clerkship in Community Health. This course consists of four major parts: (1) patient work-ups at the Rhode Island Hospital Ambulatory Patient Center; (2) a seminar series on current issues in community health; (3) an assigned Health Planning Problem in which students work in groups on issues such as Planning for Obstetrical Care in Rhode Island, Meeting the Needs of Mentally Disturbed Children in Rhode Island, the Control of Hypertension Among the Disadvantaged, the Problem of Malpractice, the Rehabilitation of Stroke Patients in Rhode Island, and the Problem of Meeting the Needs of the Terminally Ill; and (4) a set of options, 1 to 2 weeks long, such as a preceptorship, a tutorial assignment, or a research project. The 6-week course is mandatory for all clinical students and has as a prerequisite the 12-week clerkship in internal medicine. The community health clerkship is offered continuously throughout the year so that only eight students are enrolled at any one time.

During the course of the year, a total of 64 third and fourth-year students participating in the clerkship were rotated through RIGHA. After experimenting with various formats, it was decided to restrict patient-student contact so as to avoid charges of patient exploitation. The current

RIGHA rotation consists of a mandatory one-day seminar and an optional one or two-week research assignment on a topic of particular interest to the student and the medical staff. The seminar focused on three topics: (1) Structure and Organization of Group Practice and Philosophy of HMOs; (2) The History and Development of RIGHA; and (3) Basic HMO Concepts as They Relate to the Operation of RIGHA. To supplement the seminar, a series of resource materials were prepared, including an HMO Reader consisting of eight selected articles (see Appendix 7) and an HMO Library containing over 250 articles and monographs.

PROPOSED ELECTIVES

Brown and RIGHA also developed a series of electives for students who wish to expand upon their RIGHA experience. The first elective, entitled Primary Care in the HMO Setting, is a 4-6 week course in which the student spends half his time in clinical practice under the supervision of a physician-preceptor, and the other half of the time on a special research project. The student may rotate through several clinical departments or stay in the same department throughout. A maximum of two students will be accepted at any one time. The course was approved by the curriculum committee in August 1975, and was offered for the first time in the 1976 spring semester. A similar elective is being developed in ambulatory pediatrics and will be submitted soon to the curriculum committee for approval. Finally, a third elective entitled Medical Management: The Role of the Medical Director in the HMO will be offered next year to students interested in administrative medicine. Further descriptions of these electives are presented in Appendix 8.

APPENDIX 6

MEMORANDUM OF ASSOCIATION

between

RHODE ISLAND GROUP HEALTH ASSOCIATION, hereafter called "the Health Care Facility" and BROWN UNIVERSITY MEDICAL EDUCATION PROGRAM, Providence, Rhode Island, hereafter called "the University"

1. The Health Care Facility and the University hereby agree that cooperative programs in medical education and research sponsored by the University and conducted in the Facility can be of mutual benefit and contribute to the broadening of educational opportunities in the University's programs and to the betterment of the services offered by the Facility.

2. The University is willing to accept responsibility for the supervision and direction of such programs as are from time to time mutually agreed upon.

3. It is understood that the Health Care Facility retains sole responsibility for the care of patients, including all administrative and professional functions pertaining thereto.

4. Medical students participating in such programs shall be selected by the University.

5. Such programs shall be conducted only under the personal supervision of a part-time or full-time member of the staff of the Health Care Facility who shall be designated as the director of the programs. The director must have the credentials required for faculty appointment in the University's Division of Biological and Medical Sciences, shall be nominated by the Health Care Facility, approved by the Chief Academic Officer of the University's Program in Medicine and appointed to the faculty in accordance with the rules, regulations and practices of the faculty.

6. The director shall be responsible for the conduct of programs within the Health Care Facility and shall report directly to the Chief Academic Officer of the University's Program in Medicine in all matters relating to the teaching, training and supervision of medical students.

7. The medical education activities contemplated by this Agreement include:

(a) Participating in the Clerkship in Community Health

(b) Such other educational and/or research programs for students in the University's Medical Program as shall hereafter be mutually agreed upon.

8. The content of education programs for students in the University's Program in Medicine shall require formal approval of the Medical Council of the University and shall be conducted only in clinical areas which have been expressly authorized by the governing board of the Health Care Facility.

9. Continuing medical education programs for practicing physicians shall be selected and organized jointly by the Chief Academic Officer of the University's Program of Medical Education and the authorized representative of the medical staff of the Health Care Facility.

10. It is understood that the University is also a party to an affiliation agreement with Rhode Island Hospital, Roger Williams General Hospital, the Memorial Hospital (Pawtucket), The Miriam Hospital, the Providence Lying-In Hospital, and Butler Hospital and that its participation in the programs contemplated hereby shall at all times be subject and subordinate to the provisions of this agreement as the same may be from time to time amended.

11. The Health Care Facility agrees at all times to maintain in effect public liability, errors and omission and malpractice insurance policies having limits of not less than $5 million in which Brown University, its officer, employees, agents, faculty and students shall be named as insureds.

12. The provisions hereof shall remain in effect until written notice of termination given by either party to the other not less than six (6) months prior to the effective date of such termination.

IN WITNESS WHEREOF, this Memorandum has been executed in duplicate this 10th day of December, 1973.

By ______________________

Pierre M. Galletti
Vice President (Biology and Medicine)
BROWN UNIVERSITY MEDICAL EDUCATION PROGRAM

By ______________________

Rhode Island Group Health, Asso.

Appendix 7

THE HMO READER

1. "The Continuing Evolution of Health Maintenance Organizations," Gordon K. Macleod, M.D., and Jeffrey A. Prussin, M.D. The New England Journal of Medicine, 288:9 (March 1, 1973):439-443.

   This articles outline the key developments in the history of Health Maintenance Organizations (HMO's), starting with the recommendations of the Committee on Cost of Medical Care in 1932 and continuing through the twentieth century to its current level of popularity. Maclead and Prussin clearly describe the essential components of HMO's and briefly outline the evidence on HMO effectiveness in meeting the current deficiencies of the health care system.

2. "The Role of Prepaid Group Practice in Relieving the Medical Care Crisis," Ira L. Greenberg and Michael L. Rodburg. Harvard Law Review, 84:4 (February, 1971):889-921.

   This section of the comprehensive report published in the Harvard Law Review briefly describes the current "health care crisis" and how the HMO can correct these problems. Also contained in this section is a valuable description of the organization and structure of health care delivery under the HMO model. The concise definition presented here gives an excellent idea of the issues involved in the establishment and management of an HMO, including such topics as patient benefits, compensation of physicians, and the type of hospital affiliation. The various organizational models are illustrated with descriptions of the HMO's currently in existence, giving a sense of where it is the HMO's are most successful.

3. "HMO Performance: The Recent Evidence," Milton Roemer and William Shonick. Milbank Memorial Fund Quarterly, Health and Society, 51:3 (Summer, 1973): 271-317.

   Despite the fact that this study is somewhat dated, it remains the most comprehensive and objective evaluation of the evidence on HMO and Medical Care Foundation (MCF) efficiency, as it covers all of the following areas with respect to HMO performance: subscriber composition, participation of physicians, utilization rates, quality assessment, costs and productivity, health status outcomes, and patient attitudes. Roemer and Shonick, in additional to the new evidence they present, provide an excellent literature review and bibliography on the subject. Perhaps the most important sections concern the lower inpatient utilization rates in HMO's and the savings to the consumer when out-of-pocket expenses under other plans are included.

4. "Psychiatric Services and Medical Utilization in a Prepaid Health Plan Setting," William Follette, M.D., and Nicholas A. Cummings, Ph.D. Medical Care, V:1 (January-February, 1967):25-35.

   This study highlights the importance of the idea of comprehensive care in an HMO in discussing the inter-relationship between mental health services and other medical services. Furthermore, the social origin of illness behavior is clearly illustrated. Significantly, the results of this study showed that a group of members of a PPGP with a high rate of utilization of medical services had lower rates after psychotherapy. In comparison to this group, a sample of members with similar demographic background and utilization rates with no psychotherapy did not show a decreasing rate with time. These findings illustrate another way in which the HMO structure improves upon the traditional private practice fee-for-service mode of organization.

5. "Planning Health: The HMO's Opportunity," Helen L. Smits. Inquiry, XII: (March, 1975):3-9.

   Perhaps because of the current economic atmosphere, discussion of the pros and cons of prepaid group practice are too often focused on the economic advantages and ignore the other facets that went into the HMO philosophy. Smits' article is an important corrective of this. The author points to two factors, namely, working with a defined population and a predictable income, which make the HMO setting uniquely suited for "genuinely participative planning which involves both providers and consumers." In addition, the HMO presents an ideal setting for the continual dissemination of current medical information. Finally, Smits emphasizes the need for collaboration between the consumer, the provider, and other health professional, an emphasis too long neglected.

6. "The Health Maintenance Organization Act of 1973 (P.L. 93-222) and Prepaid Group Practice Plans," Joseph Dorsey, M.D. Medical Care, XII:1 (January, 1975):1-9.

   This article contains a step-by-step evaluation of the 1973 HMO Act, which represents a culmination of federal interest in HMO's. Dorsey clearly outlines the benefit package an HMO must provide in order to qualify under P.L. 93-222, and he describes how these strict regulations will be a disadvantage for HMO's attempting to compete with the traditional insurers.

7. "Should an HMO be an Integral Part of the University Medical Center?" Gerald T. Perkoff, M.D. Journal of Medical Education, 48: (April, 1973) Part II:67-72.

   Dr. Perkoff's most valuable point is that the HMO is uniquely suited to fill the "gap between training, practice, and societal needs." That is, medical school focuses the students' attention on specialized skills rather than attending to the actual needs of a population. The problems Perkoff describes in achieving such an HMO-university relationship are both philosophical and financial. Throughout his discussion, his ultimate goal is to "make the transfer from student to practitioner more effective." This kind of philosophy is important to understand in discussing the current efforts to integrate experience in primary care into the medical school education.

8. "Critical Issues in the Assessment of Quality of Care; Their Relationship to HMO's," Robert H. Brook, M.D., Sc.D. Journal of Medical Education, 48: (April, 1973) Part II:114-134.

   The relationship between quality of care and the HMO is an important one to consider because of the unique opportunities the organization of services in an HMO presents. Brook discusses at length some of the key issues involved in the current debate over the methodology of quality assessment, including a critical review of some of the recent literature on the subjec of structure, process, and outcome modes of measuring quality and the evidence on quality of care in HMQ's. Brook maintains that the prepaid group practice presents an excellent setting in which to develop "new and more appropriate methods for assessment of quality of care." Moreover, from the point of view of the HMO, quality of care studies must be initiate in order to determine if the HMO does indeed represent an improvement for the health care delivery system.

Appendix 8

DESCRIPTION OF RIGHA ELECTIVES

ELECTIVE IN PRIMARY CARE AT RIGHA

Background

Initially, the focus of RIGHA's participation in medical school teaching was to be entirely limited to preclinical or to relevant but non-clinical material. It was felt that clinical teaching involving actual patient contact and intensive supervision by physicians was beyond the scope of RIGHA's capability. In late spring of 1975, a site visit was made by the AAMC staff and advisory committee. At that time, RIGHA was urged to explore the feasibility of a clinical pathway.

Clinical medical care in an HMO is primarily ambulatory care--over 80 percent of the care given by RIGHA is given within the center's walls. Of the entire care, over 70 percent could be defined as primary--that is, care given by a primary physician.

It, therefore, appeared reasonable that as an HMO, delivering in the vast majority of cases, care which was ambulatory in nature and primary in quality, RIGHA's natural role in clinical teaching should be in teaching the delivery of primary care.

Such an elective will clearly meet a need in the Brown curriculum. The administration and faculty are sensitive to the need for more learning opportunities in the area of primary care, and welcome RIGHA's willingness to help meet this need. The Section on Community Health, in particular, is pleased to be able to offer advanced clinical work within the HMO context as part of its course offerings. Thus it was with unanimity that the Medical School's Curriculum Committee approved the proposal for this elective.

The primary care elective at RIGHA is a four to six week elective for medical students who have finished the prerequisite medical and pediatric clerkships. The program is offered to no more than two students at any one time. Each student must be interviewed by RIGHA staff prior to acceptance into the clerkship.

Curriculum

The elective consists of two activities run simultaneously. During half of the student's time, he or she will be assigned to the medical, surgical, pediatric, and obstetrician/gynecology departments. The student will be assigned to one clinical preceptor in each department. A clerk may choose to remain within one department or to have more emphasis on one department rather than to rotate through all.

During the preceptorship experience, the student will have clinical responsibilities for patient workups. The preceptor will assign cases with particular emphasis on those which demonstrate primary care problems.

Each instructor will develop an individualized program with each student. However, at this time there are no plans to develop individual faculty-student contractual relationships as structured at many other schools.

The second part of the elective will be devoted to a small research project on one area of primary care delivery at the HMO. The field experience described elsewhere has proven the feasibility of assigning to a student a health care project, given reasonable limitations on the scope and nature of projects chosen. Examples of such projects are: quality assurance studies, health education programs, design of screening programs, and evaluation of treatment programs [illegible] specific disease entities. The projects will be in the area of the student's own personal career interest and will be primarily clinical in nature. Each student will be assigned a preceptor to help plan and review the project. Each student will present the results at a staff meeting at RIGHA which will be attended by Community Health faculty.

FOURTH YEAR ELECTIVE IN AMBULATORY PEDIATRICS AT RIGHA

A growing need has been felt at Brown Medical School for clerkships in ambulatory care settings. RIGHA will participate in a new fourth year elective in ambulatory pediatrics beginning in 1976. The proposal for this elective clerkship is outlined in this section.

Although the elective will focus only on pediatrics, the RIGHA clerk will participate in many of the same activities at RIGHA as will the clerk in primary care. The student will learn the basic skills of ambulatory pediatrics as defined by the course sponsors, but in addition, the student will be expected to:

1. Participate in an independent study focusing on some clinical pediatric problem at the HMO (e.g.,--immunization levels of the population, adolescent obesity problems.)
2. Define the differences between pediatric practice in the HMO setting and in private practice through observation of private practices as well as the RIGHA program.

The RIGHA participation in the ambulatory pediatric program will serve as the model for its participation in ambulatory teaching programs through other departments. If successful, an attempt will be made to define clerkships or other shorter learning modules in which specific skills in ambulatory care could be developed in the departments of surgery, ob/gyn, and other major specialties such as orthopedics,allergy, and psychiatry.

Evaluation of this course will be at two levels. The RIGHA evaluation program as developed through the Section on Community Medicine will be combined with an evaluation by the Pediatric section using their own techniques.

Costing methodology will be the same as described under the section on costs.

FOURTH YEAR ELECTIVE IN MEDICAL MANAGEMENT AT RIGHA

Over the past several years, there has been an increasing demand for physicians to serve in planning and administrative functions. This demand is due both to the growth of organizations such as HMO's to deliver care and to the growing need to structure the entire health delivery system.

The physician/administrator or planner must have sufficient clinical knowledge to be accepted by other physicians as a peer and to assure sound clinical practice in delivery programs. Such a physician serves populations much as the clinician serves individuals.

The physician-administrator requires skills and knowledge which are seldom taught within the medical school years. The sciences of management, fiscal administration, planning, and other related fields have grown sufficiently to warrant the attention of physicians interested in administration. The historical pathway of assuming administrative posts following years of distinguished clinical practice must be replaced by specific graduate training programs paralleling or following clinical residencies. Such programs are evolving in many schools, particularly in schools of Public Health. But it is also reasonable that undergraduate medical students be introduced to the problems facing medical administrators and to the approaches they use in solving them.

It is the intention of the Section on Community Health working in collaboration with RIGHA to offer an elective preceptorship to senior medical students that would focus on the role of the medical director of an HMO. This elective program would offer the student the opportunity to become familiar with the administrative functions of a medical director and thus to develop an understanding of the problems and tasks facing a physician administrator.

The elective will be a short clinical clerkship. The student will be assigned to the RIGHA medical director for a one-month period. During that time, the student will:

1. Observe the medical director--attend meetings, sit in on project planning sessions, etc.
2. Study the work of other medical administrators for contrast--physicians in public health, hospital administration, etc.
3. Design and implement a specific independent study on an issue in health care management at the HMO. Examples are: an analysis of physician productivity, long-term care planning, hospital admission and length-of-stay controls, etc.

Preliminary discussions suggest that a small number of students would be most interested in a program of this nature and would elect the preceptorship.

It is planned to introduce this program in 1976 (fall) or 1977 (spring).

Chapter 7

HARVARD MEDICAL SCHOOL

and

HARVARD COMMUNITY HEALTH PLAN - CAMBRIDGE CENTER (HCHP-CC)

The Harvard curriculum is the only one in this report dealing exclusively with residents and the only one focused on clinical skills. The Harvard group developed an objective-oriented clinical curriculum and field-tested it at the Harvard Community Health Plan - Cambridge Center on internal medicine residents participating in the Harvard Primary Care Program. The curriculum focused on areas other than internal medicine, with a special emphasis on psychiatry. A preliminary cost analysis of the HMO-based residency training was also prepared. The project was performed by staff physicians from the Cambridge Center and its affiliated community hospitals. A group of three internists was responsible for curriculum development in all areas except psychiatry and a group of three psychiatrists (known as the Behavioral Sciences Subcommittee) was responsible for the psychiatric component and for planning for a psychiatric residency training program.

BACKGROUND

The Harvard Medical School and its affiliated hospitals have been engaged in primary care education since the mid-sixties when a Family Health Program was initiated at Children's Hospital Medical Center. In the late sixties an occasional resident in medicine or pediatrics elected rotations in neighborhood health centers or other ambulatory facilities. Other primary care education efforts involved the Harvard Community Health Plan (HCHP), as indicated below.

The Harvard Community Health Plan - Cambridge Center (HCHP-CC) is the Cambridge satellite of the Harvard Community Health Plan, the major center of which is located at Kenmore. The Cambridge Center has been in operation since 1973 and presently serves over 15,000 enrollees in a new 44,000 square foot facility. The Kenmore Center, which has been in operation since 1969, has already reached capacity at over 35,000 enrollees.

Residency training at Kenmore dates back to 1970-1971 when three residents in Internal Medicine and one in Psychiatry spent one afternoon per week under the supervision of a staff physician. Educational opportunities were also offered to medical students. A one-month elective provided several clinical students an opportunity to study in depth a problem in primary health care, and a course entitled The Delivery of Medical Care in the 1970's: Issues and Examples, was offered to first year students.

Residency training was an explicit goal of the Cambridge Center even prior to its inception. A Robert Wood Johnson Foundation award to the Cambridge Center in December 1972 was contingent upon the development of a residency training program. In July 1975 four residents in Internal Medicine participating in the Harvard Primary Care Program began their training at the Cambridge Center. The Harvard Primary Care Program, also supported by the Robert Wood Johnson Foundation, supports primary care training at various ambulatory care sites in the Boston area for 25 Internal Medicine residents.

THE CURRICULUM DEVELOPMENT PROCESS

The major objective of the project was to prepare a curriculum for the new residents based on task analysis and definition of behavioral objectives and focused on areas other than internal medicine (AOTIM). Traditionally, clinical teaching has been haphazard. Learning objectives are rarely specified and when they are, they are too vague to benefit either the preceptor or resident. Moreover, the skills that the resident acquires in his training do not always reflect the requirements of private practice and primary care. This approach was designed to avoid these pitfalls.

Drawing upon their own experience in the AOTIM specialty under consideration, the internists prepared a preliminary list of tasks most often encountered in primary care practice. On the basis of these tasks, the group delineated and progressively refined a set of behavioral objectives, expressed in terms that can be measured and evaluated. The objective list was then submitted to a consultant who was asked to consider: (1) what were the most common referrals from primary care physicians; and (2) which of these could be treated by the referring physician? Generally, for each specialty, objectives were grouped as follows:

1. Statements of history-taking and physical examination skills.
2. Statements of psycho-motor skills.
3. Inductive (symptom oriented) considerations.

4. Deductive (disease oriented) considerations.

5. Conditions and diseases that the resident must recognize and refer for treatment.

6. Statements of important therapeutic principles.

The rationale for this structure was based on convictions about the general substance of post graduate training programs, best expressed in the authors' own words:[1]

1. Skills in history taking and physical examination are emphasized as crucial areas. Too often organized formal training in physical diagnosis stops after the medical student level. Areas such as the pelvic or neurologic examinations may not be well developed in the house officer who then tends to ignore these important areas. Alternately, the physician in training may have mislearned whole parts of the physical examination. We seek to emphasize fundamental competence in the primary care physician both in general medicine as well as in AOTIM (area other than internal medicine).

2. Within each area described below, we have identified key skills that belong in the primary physician's repertoire. Some of these abilities should be part of any doctors' capabilities, as e.g. skills in [illegible] aid or cardiopulmonary resuscitation. However, in this report we have focused on those skills in the AOTIM that would be commonly used by the physician. The items listed have been cross-checked with consultants in each area as being in the primary care realm and within the scope of primary physicians' practice.

3. From the very beginning of our curriculum deliberation, we grappled with the question of using an inductive versus deductive approach. Most textbooks of medicine utilize the latter perspective and are written -- as MacBryde put it -- ". . .as though every sick person carried his presumptive diagnosis labeled on his chest".[2]

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[1] Matthew A. Budd et. al., Training Adult Primary Care Residents in an HMO: In Fulfillment of a Grant from the AAMC. December 1975.

[2] Cyril MacBryde, ed., Signs and Symptoms, 4th edition, J.P. Lippincott Co., Philadelphia, c. 1964.

On the other hand, a symptom oriented emphasis more nearly reflects the manner in which patients present. There is a practical limit however to the amount of useful information that can be subsumed under any given symptom or sign. Nevertheless, the formula which says, e.g., "Given a patient with a chief complaint of dizziness, proceed in the following way:. . ." offers a clinically useful guide. It gives form to what otherwise may be disjoined facts not easily used in patient care. Within each AOTIM objectives are contained the major symptoms (or signs) that the primary care physician can expect to encounter in practice. The objectives are intended to reflect subsequent approaches attendant upon the given symptom or sign.

4. There comes a point in the diagnostic process where inductive reasoning generates a tentative diagnosis. Thus, a knowledge of specific disease states is a very important part of the physicians' cognitive skills. The AOTIM curriculum objectives have listed the common entities with which the physician must be conversant. With the help of our AOTIM consultants, we have defined these common diseases and have classified them generally into two groups: (1) those which the primary care physician should be able to recognize and treat, and (2) those which the primary care physician should recognize and refer.

5. Of the AOTIM diseases, we have chosen to segregate those illnesses which though uncommon must be recognized or suspected even if treatment of the illness falls outside the primary care physicians' capabilities. The common denominator is the treatability of these conditions, which if missed generally have serious to catastrophic consequences. This characteristic justifies the incorporation of these problems into a separate set of objectives. Some examples of these conditions would be ectopic pregnancy, acute epiglotitis, angioneurotic edema, acute disc herniation with sphincter compromise, and acute glaucoma.

6. Treatment issues are a fairly obvious part of any clinically oriented curriculum. These objectives span the range of specific motor skills (e.g. using a cock up splint) to items dealing with medication (cost/effective objectives; generic/brand issues, etc.).

The result of this process was the preparation of a set of preliminary lists of objectives in eight areas: urology, ENT, ophthalmology, orthopaedics, general surgery, nutrition, dermatology and Ob/Gyn. They are presented in their entirety in Research Paper No. 6.

THE RESIDENCY TRAINING PROGRAM

The program was predicated on several assumptions. First, the primary care physician should be able to handle the majority of problems brought by his panel of patients. Since these are often in areas other than internal medicine, the residents' training must be broadened accordingly. Second, the curriculum must reflect the fact that a high proportion of patient visits concern psychological problems. Third, continuity of care must be an integral part of the curriculum. Finally, the curriculum itself is a dynamic product, constantly changing as results are evaluated and conditions change.

Curriculum implementation began in July 1975 with the introduction to the Cambridge center of four internal medicine residents -- two junior residents from Mount Auburn Hospital and two senior residents from Cambridge Hospital -- who are participating in a two year residency program in adult primary care. The program consists of eight alternating three-month blocks, half of which are spent in the ambulatory care setting, and half at the backup hospital. Residents are paired to facilitate coverage of each other's patients. The content of the hospital rotation is similar to hospital training received by other hospital-based residents in straight internal medicine, except that during the hospital rotation, one afternoon per week is spent at the Cambridge center.

During his/her stay at the Cambridge center, the resident is assigned four one-half days per week to a team consisting of an internist-preceptor and a nurse practitioner.

The resident spends an equal amount of time per week with various consultants, mostly in surgery and surgical subspecialties. Both the consultants and the resident are provided with the appropriate list of objectives. It helps the specialist know what to teach and the resident what is expected of him. The program includes a didactic lecture once a week in which consultants discuss a topic drawn from the behavioral objectives. In addition, all internists and residents attend once a week an "LMD Journal Club" in which participants select a topic of interest based on commonly occurring problems.

THE BEHAVIORAL SCIENCE COMPONENT

The behavioral science group was assigned the responsibility to design the psychiatric component of the curriculum for the internal medicine residency program and prepare initial plans for a psychiatric residency. Utilizing the procedures of their colleagues in internal medicine, the psychiatrists tried but soon abandoned efforts to derive detailed objectives from corresponding task lists. There were several reasons for this. First, the data base in psychiatry is much softer than in the medical disciplines. Secondly, techniques in psychiatry are more related to process than tasks. Finally, evaluation of change is much more subjective in this field. Instead, the group developed a set of three overall objectives as a general framework for the psychiatric content of the primary care curriculum. These overall objectives are:

(1) Sensitivity skills - learn to be more sensitive to patients and their needs for treatment and understanding.

(2) Therapeutic skills - learn how to counsel various kinds of patients with problems complicating, causing, or resulting from their medical (and social-psychological) conditions.

(3) Referral skills - learn to recognize serious psychiatric disorders and develop skills of referral, utilizing appropriate resources.

A further elaboration of these objectives is presented in Table 1 on the following page.

A variety of instructional methods were developed for implementing this curriculum (see Table 2). These included a one-hour didactic seminar per week (see Table 3); a supervisory experience where the resident sees one case per week; one hour per week of consultation where the resident observes the psychiatrist with his patients; video tapes; group experience with peers and faculty for a one and one-half hour session per week; and electives as available. To evaluate the efficacy of the curriculum, the group developed a set of evaluation instruments, presented as Appendices 9 and 10.

PLANS FOR A PSYCHIATRIC RESIDENCY

The development of a primary care residency with significant behavioral science content, provides a vehicle for the training of psychiatry residents at the interface of medicine and psychiatry. A preliminary set of objectives

Behavioral Science Component
Objectives and Methods

CATEGORY OF SKILLS	OVERALL OBJECTIVES	SUB-OBJECTIVES	METHODS
SENSITIVITY SKILLS	To educate primary care physicians to be more sensitive to patients and their needs for treatment and understanding.	Understand the process of normal development through life cycle.	Didactic, Supervision, Consultation.
		Be aware of own reactions and effect of treatment process.	Group, Consultation, Supervision.
		Understand economic, class and environmental influences on illness.	Didactic, Consultation
		Learn to use knowledge of psychosocial factors and community resources for treatment.	Didactic, Consultation
THERAPEUTIC SKILLS	Learn how to counsel various kinds of patients with problems complicating, causing or resulting from their medical (and psychosocial conditions.)	Understand the "psychosomatic approach" in its broadest sense.	Didactic, Consultation
		Be experienced in rudiments of history taking, interviewing skills, and minor psychotherapeutic techniques.	Didactic, Supervision, Consultation, Videotape
		Be able to recognize and deal with the acute (though often low level) anxiety and depression often related to illness.	Didactic, Supervision, Consultation
REFERRAL SKILLS	Learn to recognize serious psychiatric disorders and develop skills of referral process, utilizing appropriate resources.	Develop diagnostic skill for major psychiatric disorders.	Didactic, Consultation
		Be able to elicit data relevant to suicidal or homicidal potential.	Didactic, Consultation Videotape.
		Know how to arrange for hospitalization when needed.	Didactic
		Know how to work with psychiatrists in providing proper treatment.	Didactic, Group, Supervision
		Understand various types of psychiatric treatment, other types of therapists, and ways in specialized services are presented.	Didactic, Supervision

TABLE 2

BEHAVIORAL SCIENCE COMPONENT
TEACHING METHODS

Didactic Seminars (D/S)

A series of one-hour presentations interspersed throughout the year with other medical topics. Designed to provide practical and applicable psychosocial information relevant to the physician's daily clinical case load.

Supervisory Experience (S)

Specifically designed to offer the resident closely monitored experience in dealing with the emotional problems of medical practice. Residents will see patients in brief psychotherapy to learn how to deal with appropriate cases in individual or couples therapy. Each resident will see one case per week.

Consultation (C)

Each resident should learn how to utilize the services of a psychiatric consultant in the management of his usual medical case load. Psychiatrists can observe the resident's interviewing and history-taking technique, how he establishes a doctor-patient relationship (alliance), and how he attends to cues in his decision-making process. Regularly scheduled medical patients will be seen by the psychiatrist and resident. One hour each week.

Videotape (V)

Useful for observing how experienced interviewers talk to patients as well as for observing oneself critically in the process of learning and using new skills.

Group Experience (G)

Designed to foster interaction of peers and faculty in one-and-one-half hour sessions each week throughout the two year program. Case-oriented discussions are co-led by a psychiatrist and primary care preceptor and will include comments on and criticism of the resident's understanding and skill. Part of the experience will have as its objective to learn about oneself--reactions to patients, prejudices, strengths and weaknesses, the interaction of physician's personality with that of the patient. The emphasis is upon the experiential (rather than substantive) side of becoming a doctor and engaging in doctoring.

Electives (E)

Residents with special interests will have opportunities in the second year to pursue these (e.g. applications of hypnosis to medical care; behavioral techniques, etc.).

TABLE 3

BEHAVIORAL SCIENCE COMPONENT

DIDACTIC SESSIONS

For the primary care physician to be able to care for his patients as a whole, he/she must be able to acquire the knowledge and experience which will permit him/her to compose diagnoses and treatment plans in physical, psychological and social terms. A series of seminars, interspersed with other medical topics throughout the year is intended to complement other learning experiences with attention to practical application to office practice.

1. The Emotional Aspects of Common Problems Presenting to a Doctor: A Survey of Medical Practice.
   Why do patients come to the doctor? What do they want? Tuning your ear to the chief complaint.

2. The "Psychosomatic " Approach: Illness as a Unified Whole.
   The fallacy of mind-body, organic-functional dualism.

3. The Experience of Illness: What It Means to be Sick.
   Determinants of pain: cultural and social aspects.

4. Hypochondriasis: Isn't All Pain Real?

5. The Life Cycle and the Family: A Developmental Approach to the Individual Problems Related to Phases of Growth, Adolescence, Mid-life, Old Age, Death and Dying.

6. Eliciting the Sexual History: An Approach to Individual and Marital Sexual Development.

7. "Bad Feelings": Recognizing and Managing Depression and Anxiety.

8. Suicide: How to Assess the Risk and What to Do.

9. Habit Patterns and How to Modify Them:
   Uses of Hypnosis, TM, Group Therapy, Biofeedback
   The Health Hazards of Smoking, Obesity, Drug Abuse
   Alcoholism and its Medical Treatment

10. Psychopharmacology: What Drugs for What Problems?

11. Practical Tips on Interviewing, Taking a Mental Status, and Making Personality Diagnoses.

12. The Physician as Psychotherapist: Brief Techniques.

13. Referral to a Psychiatrist: When, Why, and How?

14. Community Resources and Other Therapies.

of such an experience are presented as Table 4 on the following page. A proposal for a psychiatric residency program is presently being negotiated with McLean and Cambridge Hospitals.

COST ANALYSIS

Robert Lawrence, M.D., a member of the internist group and director of the Harvard Primary Care Program, prepared a preliminary cost analysis of the internal medicine residency training program at the Cambridge Center. He found that the average resident produces 7.1 patient visits per four-hour session compared to 13.0 patient visits for the average internist. However, the resident doesn't quite pay his way. While his stipend averages $12,000 per year, the replacement value of his production is about $9,900 per year for a net cost of about $2,100. However, this figure does not include productivity loss of the preceptor resulting from time devoted to teaching.

The cost analysis is presented as Resource Paper No. 16. Both the methodology and the figures are preliminary in nature and need further refinement, especially with regard to staff productivity loss.

TABLE 4

PSYCHIATRIC RESIDENCY OBJECTIVES

A residency track in psychiatry and primary medical care should address itself to the following objectives:

1. Acquaint the resident with the body of knowledge which comprises psychosomatic medicine as a scientific discipline.

2. Teach the resident the skills necessary to apply a psychosomatic approach to all of medicine.

3. Provide an experience which includes close working relationships with non-psychiatrists as well as paraprofessionals in what will be an interdisciplinary approach.

4. Obtain experience in a general hospital or ambulatory setting, to familiarize oneself with the spectrum of patients who are treated for acute illness by the medical profession.

5. Work closely with a primary care physician in a typical (or simulated) office practice for maximum exchange of viewpoints, styles, and skills.

6. Obtain special training in behavioral modification techniques, hypnosis and other modalities which rely to some extent upon an appreciation of psychological understanding in their application to general medical complaints (e.g. obesity, smoking, accident proneness, generalized anxiety, and so on.)

7. Devise and carry out a circumscribed clinical/research project which demonstrates the use of the psychosomatic approach and its applicability (by the primary care physician) to general medicine.

8. Learn and appreciate the nature of primary medical practice, including the pressures, orientation, skills, styles, rhythm, and so on of the primary physician.

9. Learn how to translate psychodynamic principles into comprehensible language with practical application to the common problems of medical practice.

10. Learn how to alter the psychiatric stance and interviewing style of the psychiatric intake process to the more medically-oriented model of the practicing physician.

11. Learn to recognize and deal with one's own discomforts about "returning" to the medical scene, often experienced as a regression in the psychiatrist's identity as a psychotherapist and specialty consultant.

12. Learn how to be supportive and not critical of the physician who is trying to learn how to cope with his own anxieties, especially around the aspect of converting from an active to a more passive listening approach. The psychiatrist must refrain from "psycho-analysing" his primary care colleague.

APPENDIX 9
BEHAVIOR SCIENCE COMPONENT
SAMPLE PRE/POST TEST

1. The important advantages of open-ended initial questions in an interview are:

   a. It provides rapid access to the quality of the patient's speech and his major concerns.
   b. It improves the efficiency of the interview.
   c. It provides an opportunity for the interviewer to present himself as a sympathetic listener.
   d. It allows the interviewer to avoid sounding judgemental.

   In the previous and subsequent questions, answer:

   1-if a and c are correct
   2-if a,b,and c are correct
   3-if b and d are correct
   4-if only d is correct
   5-if all are correct

2. Currently available biofeedback techniques offer useful therapy for:

   a. Ulcerative colitis
   b. Raynaud's Phenomenon
   c. Asthma
   d. Migraine headaches

3. In one paragraph, define and explain the use of the word "psychosomatic".

4. Match one or more entries in column A with those in column B

   A

   A. Psychophysiological Disorder

   B. Conversion Disorder

   C. Hypochondriasis

   D. Malingering

   B

   1. Munchausen's syndrome.
   2. "La Belle Indifference"
   3. Autonomic nervous system
   4. Inappropriate preoccupation with pathology of bodily function
   5. Symbolic meaning to the symptom
   6. Self-inflicted injury
   7. Voluntary nervous system
   8. Primary anatomic alterations
   9. Functions as a defense against painful feelings.
   10. Vomiting
   11. False pregnancy
   12. Migraine headaches
   13. Physiological fluctuations
   14. Associated with increased suicide risk when the patient is depressed.
   15. Responds to psychotherapy.

5. A 30 year old single registered nurse presents with symptoms of tension, trembling, and apprehension. She reports that 1-2 months before she had terminated a relationship with an older, married physician on the staff of the hospital at which she works, whom she continues to see on a regular basis at her work. She weighs 220 pounds and admits to chronic obesity since age 13, despite many efforts to lose weight. Reasonable explanations for her presenting complaints include:

   a. Caffeinism secondary to intake of greater than 20 cups of coffee per day.
   b. Hyperthyroidism.
   c. Chronic amphetamine and/or diet pill abuse.
   d. Pheochromocytoma.

   Answer as in Numbers 1 and 2.

6. A Regitine challenge test done in your office is negative. She denies smoking, consumption of caffeinated drinks and/or use of any drugs. Inquiry into her feelings about her former paramour are fruitless, since though her eyes brim with tears, she insists she no longer has any emotions about the relationship. Instead, she asks for a prescription for "medication to help me through the next couple of weeks". The time for her appointment is already over and your phone rings indicating that your next patient is ready to be seen. The most appropriate measure to take at this point is:

   a. Immediately write a prescription for Valium, #25, 5 mg po tid.
   b. Write a consult form to Mental Health.
   c. Arrange to see the patient within a week or two to collect further history.
   d. Take another half hour to collect more data about her relationship with the doctor before coming to a decision.

   (choose the best answer)

7. Hearing that her request for medication has been at least temporarily refused, the patient angrily replies that you don't understand her problems and aren't really interested in helping people. She says she sees no point in returning to see you under these conditions. To then write a prescription for Valium would then:

   a. Touch her, and cement the therapeutic alliance.
   b. Be providing the appropriate drug anyway.
   c. Reinforce maladaptive behavior.
   d. Reinforce healthy assertiveness.

8. Other effective and appropriate treatments for anxiety include:

   a. Assertion therapy.
   b. Transcendtal Meditation.
   c. Autohypnosis.
   d. Reassurance that there is no cause for anxiety.

   (Answer as in Numbers 1 and 2)

9. The usual minimum daily therapeutic daily dose of tricyclic antidepressants for treatment of appropriate depressions in a 140 pound woman under age 60 is:

   a. 50 mg
   b. 100 mg.
   c. 150 mg
   d. 200 mg

10. The most useful service provided by a primary care physician talking with a tearful, unhappy patient is:

    a. Supplying the kleenex.
    b. Reassurance
    c. Sympathetic interest.
    d. Reminding the patient there are others worse off than he is.

    (Choose best answer)

11. Match one or more treatment modalities from column A with entries from column B.

    A

    A. Tricyclic antidepressants

    B. Counseling by Primary Care Physician.

    C. Referral to Psychiatrist

    D. No medications

    E. NAO Inhibitors

    B

    1. 47 year old businessman with early morning awakening, weight loss, and anorexia who feels worse in the A.M., and whose father had severe depressions culminating in suicide.

    2. 23 year old single female, with tearful depression around breakup from boyfriend, who is maintaining work function and who describes fluctuations between tearfulness and cheerfulness.

    3. 33 year old woman who says she has "never been happy", complains of chronic mistreatment at the hands of others, who is currently sleeping and eating more.

12. A 45 year old woman from a "good family" gives a history of chronic flank pain and reports passing stones on at least one occasion. She relates to you in a dependent, compliant manner. You send her to the WC to provide a urine specimen and by accident your nurse associate bursts in on her dipping a bleeding finger into her urine cup. Outraged by this deceit, you are about to order her out of your WC and consulting room when you decide instead to talk with her. The best approach would be:

    a. A scathing denunciation of her attempt to make a fool of you.
    b. A cool, firm confrontation, expressing your anger, in hopes of extinguishing her manipulative behavior through punishment.
    c. Expression of surprise, even irritation, along with a wish to understand why she needed to tamper with her urine sample.
    d. Having your nurse talk with her while you cool off.

SUICIDE

1. Suicide is more common among: (circle one of each pair)

   a. men-women
   b. young-old
   c. blacks-whites
   d. married-divorced
   e. married without children-married with children
   f. Protestants-Jews
   g. rural dwellers-urban dwellers
   h. in the spring-in the winter
   i. patients who have attempted suicide before-patients who have never tried befor

2. Suicide is a more frequent cause of death than:

	True	False
a. Coronary heart disease	___	___
b. Leukemia	___	___
c. Homicide	___	___
d. Tuberculosis	___	___
e. Cancer	___	___

3. Concerns over suicide increase as patients become more depressed. Which of the bodily symptoms listed below would increase your concern about the seriousness of the patient's depression: (circle all appropriate answers).

   a. Productive cough
   b. loss of appetite
   c. loss of weight
   d. sweating
   e. waking early in the morning
   f. palpitations
   h. loss of interest in and desire for sex
   i. constipation

4. A fifty-seven year old man is seen for evaluation because of weight loss of 20 lbs. over the last three months. He confides in you considerable disappointment over the promotion of a younger employee to a supervisory position he assumed he would be asked to fill. In addition, he expressed his resentment over infrequent invitations to his three childrens' homes in the 15 months since his wife died of cancer. He acknowledges feeling quite depressed and despondent about his future. You need to assess his potential for suicidal behavior.

	True	False
a. Asking directly about thoughts of suicide will put the idea in his mind.	___	___
b. Questions about plans for suicide such as date, place, method, allow you to assess the degree of preparedness to die.	___	___
c. You call his daughter who tells you not to worry	___	___

		True	False
d.	Painful feelings of worthlessness and hopelessness can be alleviated by letting the patient know that these are all part of getting older and having sad things happen.	___	___
e.	Your concern is increased by his lack of permission to cry combined with his guilt about enjoying pleasures since his wife died.	___	___
f.	The patient requests for pills to give him some strength to go on shows his interest in the future.	___	___
g.	The patient's request for hospitalization should be discouraged as it will only foster his hiding from reality and delay his adjusting to his losses.	___	___

HOMICIDE

1. A 27 year old man presents asking for evaluation of a swollen wrist. Your history reveals that he and his wife have been fighting about his mother's criticism of her housework and childrearing practices. In the midst of their last argument he felt like strangling his wife, became frightened of his rage, and suddenly turned and slammed the wall with his fist. Which of the following would increase your concern about violent or murderous behavior? (Circle all appropriate items)

   a. Use of alcohol.
   b. Use of amphetamines.
   c. Smoking over 1 pack per day.
   d. Brutal beatings as a child.
   e. History of torturing animals.
   f. Eneuresis, history of
   g. Diarrhea.
   h. Owns a gun.
   i. Experience with weapons in armed services or sports club.
   j. Past arrests for assault.
   k. Seizure disorder.
   l. Diabetes.
   m. Loner.
   n. Suspiciousness or paranoid psychosis.
   o. Homosexuality.
   p. Preoccupation with revenge and retaliation.
   q. History of fire setting.
   r. Hyperventilation syndrome.
   s. Sense of powerlessness to change painful realities.
   t. Sense of acute humiliation.

APPENDIX 10

RATING SCALE

In an attempt to evaluate and monitor the personal and emotional skills, development, and deficits of the primary care internal medicine residents, the following assessment form was developed. The psychiatric preceptor completes this assessment at the beginning and end of the training period. We are considering as well its use at more frequent intervals. The data is collected with the preceptor observing the resident as he or she conducts a complete history and physical examination. Additional data is drawn upon during the training period from their weekly sessions (see teaching methods). It is our hope that such an instrument periodically completed will help the preceptor discriminate areas of strength and weakness in the resident's development and that both constructive feedback and reshaping of the subsequent training experiences can be considered. The use of both a narrative and visual recording of data helps in monitoring progress, collecting impressions, and avoids losing sight of problem areas in a resident's generally satisfactory performance.

BEHAVIORAL ASSESSMENT FORM (adapted from Personality Patterns of Psychiatrists, by R.R. Holt and L, Luborsky, N.Y, Basic Books, 1958).

Name:
Age:
Sex:
Race:
Marital Status and years:
Children - age and sex:
Religion:
Year of Training:
Past training in interview skills and psychological issues:

Past personal psychotherapy:

Intelligence: high average below average

Circle the best approximate description and comment:

I. While taking a medical history and doing a physical examination:

A. Shows respect for and appreciation of the meaning of the symptoms or illness to the patient

a. demonstrated
b. variable
c. limited

B. Takes a psychological history

a. thorough
b. superficial
c. avoided

C. While taking a psychological history

a. is comfortable
b. is moderately uncomfortable
c. is quite anxious

D. Makes a personality assessment when with a patient

a. regularly
b. has some sense of patient's personality style
c. fails to make assessment

E. Uses personality assessment of patient in dealing with the patient

a. regularly
b. occasionally
c. infrequently

F. Does a respectful physical examination, understanding issues of modesty, deformity, aging, puberty, exhibitionism

a. sense is present
b. variable
c. absent or limited

II. Shows an interest in his/her patient and is warm and empathic

a. demonstrated
b. variable
c. limited

III. Sensitive to patient cues and needs

a. demonstrated
b. variable
c. limited

IV. Tolerates stress in the doctor-patient relationship from patients.

A. Anxiety

a. demonstrated
b. variable
c. limited

B. Anger

a. demonstrated
b. variable
c. limited

C. Seductiveness

a. demonstrated
b. variable
c. limited

D. Sadness, grief or depression

a. demonstrated
b. variable
c. limited

E. Threats

a. demonstrated
b. variable
c. limited

F. Criticism

a. demonstrated
b. variable
c. limited

G. Chronic, refractory, terminal illness

a. demonstrated
b. variable
c. limited

H. Distress over uncertainty in diagnosis or outcome

a. demonstrated
b. variable
c. limited

V. Inspires confidence and trust

a. regularly
b. variable
c. rarely

VI. Accepts responsibility

a. easily
b. fairly well
c. poorly - avoids it

VII. Impulsive - Judicious

a. thoughtful and careful
b. variable
c. impulsive

VIII. Firmness

a. firm
b. vascillates
c. passive

IX. Seductiveness with patients

a. Under control
b. variable
c. is seductive with patients

X. Hostility with patients

a. under control
b. variable
c. expressed - loses control

XI. Tolerates heavy work load

a. well
b. variable
c. poorly: complains, gets disorganized, irritable, scared, depressed.

XII. Finds pleasure and satisfaction in the work.

a. regularly
b. occasionally
c. rarely

XIII. Can say "no" to patients

a. easily
b. with discomfort
c. area of trouble for resident

XIV. Interested in patient as a person as well as an illness/symptom

a. interested in the person shown
b. variable
c. interest primarily in the illness/symptom

XV. Skills in synthesizing data

a. good
b. variable
c. limited

XVI. Flexibility with patients

a. flexible - can share controls with patient
b. variable
c. rigid and domineering with patient

XVII. Sense of humor with patients

a. good
b. fair
c. limited

XVIII. Tact

a. tactful
b. variable
c. tactless

XIX. Insight into own personality

a. good
b. variable
c. limited

XX. Tolerant of others

a. consistently
b. variable
c. intolerant

XXI. Communicates effectively with patients so they understand material presented and can hear it

a. consistently
b. variable
c. rarely

XXII. Communicates effectively with staff so they understand material presented and can hear it

a. consistently
b. variable
c. rarely

XXIII. Considers social class, ethnic, religious values as they affect patient and illness.

a. regularly
b. variable
c. rarely

XXIV. Curious and eager to learn

a. very
b. variable
c. limited

XXV. Sense of ethics

a. high, concerned
b. variable
c. lack of concern

Chapter 8

FINDINGS AND RECOMMENDATIONS

It is evident from the previous chapters that this project accomplished much more than it set out to do. While the original objective was to develop educational programs in HMO's, much more was achieved, including the following:

- the implementation as well as development of educational programs in HMOs.
- the development and implementation of evaluation methodologies and related instruments.
- the development and pilot-testing of a cost methodology for measuring educational costs in the HMO.
- the development and implementation of a preceptor training program.
- the development of HMO-based educational programs for different levels of medical education, including preclinical, clinical, and graduate medical education.

The collaboration among the participating institutions made possible through the three conferences that were held during the course of the project, provided each institution the opportunity to specialize in an area of its choosing to match its interests and skills. Table 8-1 below lists the areas of specialization for each institution.

Table 8-1

SUMMARY OF ACCOMPLISHMENTS BY INSTITUTION

Area of Specialization	GU	UR	UP	UW	BROWN U.	HARVARD U.
1. Curriculum Development Process	YES		YES			YES
2. Curriculum Content	YES	YES	YES	YES	YES	YES
3. Instructional Methods	YES	YES			YES	
4. Program Evaluation		YES	YES	YES		
5. Educational Costs		YES		YES		YES

As indicated in the Table, three institutions spent a considerable amount of time in designing a curriculum development process. Curriculum content was emphasized by all institutions while three institutions concentrated on instructional methods. Three institutions developed evaluation methodologies and related instruments,while another group of three institutions present data on the cost of teaching in an HMO. The remainder of this chapter discusses these accomplishments in detail and presents our findings, conclusions and recommendations.

MEDICAL EDUCATION IN THE HMO: WHAT'S IN IT FOR THE MEDICAL SCHOOL?

Why should a medical school get involved in teaching in the HMO setting? Teaching in the HMO presents a number of difficulties as well as definite advantages. The HMO is a service, not an educational institution. Given the strict cost accounting of today's HMOs, the introduction of an educational program might be a costly proposition. Moreover, the number of students that an HMO can accommodate is strictly limited by service obligations, availability of space and the willingness of clinicians to teach. From the medical school's viewpoint, what are some of the advantages or benefits derived from learning experiences in the HMO?

Medical schools have been under increasing pressure in recent years to produce more primary care physicians. As they respond to the challenge, additional primary care training sites will be needed to accommodate the growing numbers of primary care physician trainees. The HMO, as a primary care training site, presents opportunities not readily available in the traditional primary care training sites such as the hospital outpatient department or emergency room.

1. The HMO offers the student a primary care role model not found in the traditional setting.
2. Since HMO enrollees tend to represent a cross section of the community, the student is more likely to encounter a wide cross section of diseases in the HMO than in the traditional training sites.

3. The HMO provides the student with a unique opportunity to observe or learn in a setting that emphasizes preventive care, quality of care, and cost containment.
4. The HMO exposes the student to an alternative health care delivery system.

WHAT'S IN IT FOR THE HMO?

Why should an HMO be involved in medical education? An HMO is a service not an educational institution. Even if the full costs of education are paid by an outside agency, why should the HMO member, who pays a high premium for his health care, subject himself to the care of an unseasoned resident or medical student? Here, too, medical education offers a number of distinct advantages:

1. Quality of Care - Although this has not been conclusively proven, many believe that the intellectual and professional stimulation involved in teaching tends to improve the quality of care.
2. Recruitment of Qualified Physicians - Many believe that the availability of teaching opportunities tends to attract better qualified clinicians.
3. Recruitment Costs - This is a major benefit to the HMO and the enrollee. The physician trainee is a prime candidate for a full-time, permanent position with the HMO upon completion of his training. The savings in recruitment costs include not only the cost of advertising, but also time spent in interviewing candidates and educating the new physician to an alternative health care delivery mode.

4. Student supervision - As indicated in the following section (p. 64), we found that the student is closely supervised in the HMO setting, so that the quality of care is not lowered by the introduction of students.
5. Faculty Appointments - The opportunity for faculty appointments associated with a medical education program provides an added benefit and inducement to recruitment. It means that a lesser amount in salaries and fringe benefits is required to attract highly qualified physicians.
6. Tertiary Care - The association with a medical school not only adds prestige to the HMO, but also provides easier access to quality tertiary care in the university hospital.

WHICH HMOs ARE BEST SUITED FOR TEACHING?

To determine what type of HMO is best suited for teaching, we examined selected characteristics of the HMOs participating in this project, see Table 8-2, below. We found that:

- One-half of the participating HMOs are sponsored and operated by medical schools and the other half are independent or supported by other agencies;
- All but one of the HMOs are relatively "young", having opened for services in the early 1970's;
- With one or two exceptions, the HMOs have been remarkably successful in meeting their targeted enrollment levels;
- Three of the HMOs were utilizing their facilities to full capacity. The facilities at the other three HMOs were under-utilized, primarily because the HMOs were still gearing up to full enrollment.

Table 8-2

CHARACTERISTICS OF THE PARTICIPATING HMOs

	Sponsor	Opened for Services	Number of Enrollees (1975)	Facility
GUCHP Washington, D.C.	medical school	1972	10,000	3 Outpatient Facilities
GVGHA Rochester, N.Y.	Blue Cross	1973	20,300	52,000 sq.ft.
PENN URB Philadelphia, Pa.	medical school	1974	not available	5,500 sq.ft.
GHCPS Seattle, Wa.	Independent	1949	200,000	9 Outpatient Facilities; 300-bed hosp
RIGHA Providence, R.I.	organized labor; Insurance Co.	1971	15,000	13,000 sq.ft
HCHP-CC Cambridge, Ma.	medical school	1973	15,000	44,000 sq.ft

What can we conclude from these findings? A comparison of the group of HMOs sponsored by medical schools with the group of "independent" HMOs reveals no significant differences between the two groups regarding their educational accomplishments examined in this chapter. In other words, the "independent" HMOs performed just as well as the university-sponsored ones in this project. This leads us to the somewhat surprising conclusion that the independent HMO is as well suited for medical education programs as the university-sponsored HMO. At least one of the three university-sponsored HMOs included in this project has been established primarily for the purpose of providing the medical school with a site for primary care education. On the basis of our experience we have found no evidence to support the establishment of an HMO by a medical school solely for the purpose of education. True, all but one of the participating HMOs are still in their infancy; it is possible, and perhaps probable, that as the HMOs mature and the educational programs develop, the quality of the university-sponsored curricula would surpass that of the "independents". But we have found no evidence to support this contention. In any case, in the early stages of HMO development, there are few significant differences in the educational programs of the two groups.

Another surprising conclusion is that a relatively new HMO is just as capable of mounting a successful program as a more stable and mature one. For example, the Harvard Community Health Plan at Cambridge implemented its primary care residency training program exactly two years after the HMO became operational and GVGHA implemented its program for first year medical students less than one and one-half years after it opened its doors. It should be noted however, that with one or two exceptions, the newer HMOs included in this project have had spectacular success in meeting enrollment targets and developing a sound financial base. This leads us to conclude that an HMO should not undertake an educational program if it faces major marketing or financial problems.

The "younger" HMOs appear to have an added advantage of having adequate facilities for education before they reach full capacity. However, we found that the availability of space is not a major factor in determining the size or quality of an educational program in an HMO. For example, Group Health Cooperative of Puget Sound, the most established of the six HMOs and the one with the least "extra" space, has an extensive educational program. In addition, RIGHA made due with a tight space situation. We conclude that the availability of extra space is not a major advantage nor is the lack of it a major impediment to teaching in an HMO under present circumstances of student assignment. Should more extensive student assignments be necessary, space limitation might pose a more serious problem.

WHAT CAN/SHOULD BE LEARNED IN AN HMO? (CONTENT)

The question, "what can be most effectively and efficiently taught at an HMO?", was frequently raised at the conferences of participants. Although discussions usually revolved around three learning areas -- HMO concepts, primary care, and clinical skills -- these were never defined or even named as such at the time. Table 8-3, below, indicates the areas the institutions finally chose to emphasize under this contract. It should be noted, however, that most institutions included all three subject matters in their programs but chose to emphasize one more than another. What do these learning areas mean and what are some of the advantages and limitations of teaching them in the HMO?

TABLE 8-3

PRINCIPAL LEARNING OBJECTIVE OF HMO-BASED CURRICULUM BY LEVEL OF MEDICAL EDUCATION AND INSTITUTION

	Learning HMO Concepts	Acquiring Knowledge/ Attitudes in Primary Care	Acquiring Clinical Skills
Georgetown University	preclinical students		
University of Rochester	First-year medical students	First-year medical students	
University of Pennsylvania		All Medical students	Third year medical students
University of Washington		First to Third yr. medical students	First to Third yr. medical students
Brown University	clinical students		
Harvard University			Graduate students

HMO Concepts - A curriculum emphasizing HMO concepts introduces the student to concepts related to HMOs, such as the organization and management of HMOs marketing, financing and economics, the changing role of the provider, and consumerism. The manual, A Student Guide to HMO's, Resource Paper No. 2, is a good example of this. Teaching students about HMOs offers several advantages. It is inexpensive, it can be done outside the HMO facility thereby avoiding interference with service, it can encompass a large number of students, and the bulk of the teaching can be done by non-physicians. As the project progressed, however, it soon became evident that teaching students about HMOs does not fully utilize the potential of the HMO. In fact, the institutions that had originally chosen to emphasize this content area have either already expanded the curriculum to include other material or are planning to do so this year.

Primary Care - A curriculum emphasizing primary care introduces the student to concepts such as team practice, continuity of care, quality of care and patient education through observation or practice. The HMO is well suited for this kind of learning since it offers "real world" primary care role models and a wide cross-section of diseases and conditions. On the other hand such a program is more costly. It requires more staff time and also a student presence in the HMO that can interfere with services. Three institutions emphasized primary care in their curriculum, but each of them, it should be noted, chose to concentrate in one other content area as well.

Clinical Skills - Teaching clinical skills in the HMO is a costly proposition and it raises the question of patient acceptability, always a sensitive issue in an institution such as an HMO. It requires closer supervision and a large time commitment on the part of the preceptor. On the other hand, clinical teaching in the HMO offers advantages over other settings. For one thing, we found that in general the student is closely supervised in the HMO setting. This is probably due to the need to secure the patient's acceptance and approval and to reassure him that he's receiving proper care. In fact, we find it pleasantly surprising that there has been very little resistance on the part of the patients and HMO enrollees to these education efforts. The Group Health Cooperative of Puget Sound, which has the most extensive experience of any of the participating HMO in clinical teaching, has studied this issue closely and has found wide patient acceptance. Group Health, of course, takes elaborate precautions to ensure prior patient consent.

In summary, any of these three content areas are appropriate for teaching in the HMO setting. However, teaching HMO concepts is the least costly but also constitutes the least efficient use of HMO resources, while teaching of clinical skills is the most costly but also most rewarding for both preceptor and student.

WHEN IS HMO-BASED LEARNING MOST EFFECTIVE?

At what level of medical education is HMO-based learning most effective? Should the student be introduced to the HMO during the preclinical, clinical or graduate years? These questions also received frequent hearings at the conferences. Inspecting Table 8-3, again, we notice that (1) HMO concepts were most frequently taught to preclinical students; (2) primary care was a subject for all medical students; and (3) clinical skills were introduced primarily to clinical and graduate students.

In our site visit to GVGHA we interviewed a group of first-year students participating in the introductory HMO course designed under the auspices of this project. We were most impressed with the depth of knowledge demonstrated by the students. We found that medical students are most receptive to learning about the health care system at the earliest stage of their medical education. Soon after his first semester, the student seems to be obsessed with the need to learn clinical skills and his interest in learning about the health care system declines accordingly. Primary care issues can and should be learned at all levels of medical education. The student should be introduced to these issues at the earliest opportunity through observation and/or didactic sessions, and, in later years, through clinical practice in the primary care setting.

Teaching clinical skills in the HMO is most appropriate in the clinical years, preferably the fourth year, and at the graduate level. Group Health Cooperative of Puget Sound is the only institution that has experimented with teaching clinical skills, such as history taking and physician examinations, in the preclinical years. This teaching was done primarily at the Group Health Hospital and at no cost to the HMO since the costs were absorbed by the medical school. Under normal circumstances, however, clinical teaching in the preclinical years represents an inefficient use of HMO resources.

HOW DO YOU TEACH IT? (INSTRUCTIONAL METHODS)

The participating institutions used a variety of teaching methods for getting the material across to the students, with the method depending largely on the content area and the level of education. For teaching HMO and primary care concepts to preclinical medical students, the institutions generally used a combination of didactic lectures, student-initiated research projects, and site visits to local HMO's. Clinical teaching usually involved observing the preceptor at work or practicing under his supervision.

How can we teach clinical skills in a cost effective way with minimum disruption of the service mission of the HMO? This question was addressed by Arthur S. Elstein, Ph.D., who participated in the Rochester Conference as a consultant to the AAMC. In Resource Paper No. 8, HMO Curriculum Development: Some Relevant Instructional Resources, Elstein and Maatsch describe a number of simulation techniques that can help students improve their clinical skills outside the practice setting so as to facilitate effective and efficient use of the clinical experience. These include use of simulated or actual patients in history taking communications skills; a variety of simulation equipment for training in different portions of the physical examination; clinical algorithms, flow charts, computer-based or paper-and-pencil case simulations, and high fidelity simulation games, all for instruction in complex, sequential problem solving.

For teaching HMO concepts to preclinical medical students, we recommend the University of Rochester approach which involves a combination of methods including didactic lectures, student initiated research projects, precepting, one-to-one student interviews with department heads, and home visits to selected patients (see pages 16-18).

Are HMO physicians competent as educators/preceptors? Georgetown University extended its project by six months to develop and implement a program for training physicians as educator/preceptors. The program, described in Resource Paper No. 7, A Role Guide and Resource Book for Clinical Preceptors, is highly recommended.

How much time should the student spend in the HMO setting and over how long a period? The answers to these questions are beyond the scope of this study. Student learning experiences at the participating institutions ranged from a one-day experience at RIGHA to two years at the Cambridge Center. Although we found the Rochester experience to be effective (the student spends half a day per week over a period of fourteen weeks in the HMO), there has not been sufficient experience to make any recommendations in this area.

HOW AND WHERE DOES ONE BEGIN? (PROCESS)

Constructing a curriculum in the HMO setting is an unusually complicated process because it involves two institutions with divergent missions (education vs. service). Where does one begin and how does one proceed in this joint educational effort? Who should be involved? Which institution or department should take the lead? Is a medical educator needed? Is it helpful to define behavioral objectives? To answer the questions we examined a set of selected variables related to curriculum development process. The results are presented in Table 8-4 and described below.

Table 8-4

CHARACTERISTICS OF CURRICULUM DEVELOPMENT PROCESS BY INSTITUTION

Characteristics	G.U.	U.R.	U.P.	U.W.	BROWN U.	HARVARD U
Institutional lead (medical school, HMO, or both)	medical school	both	HMO	both	both	HMO
Departmental lead (at medical school)	Community Medicine	Community Medicine	None	Family Medicine	Community Medicine	None
Involvement of Curriculum Committee		yes		yes		
Consumer Involvement	yes			yes	yes	
Participation of Educator	yes	yes	yes	yes		
Defined Behavioral Objectives		yes	yes	yes		yes
Conducted Field Test	yes	yes	yes	yes*	yes	yes

* Although U.W. did not actually implement its new curriculum it has been conducting educational programs in the HMO for many years; see chapter 5 for further details

1. Institutional lead - By institutional lead we mean which institution, the HMO or the medical school, performed most of the work in initiating, developing and implementing the curriculum? It is somewhat surprising to find that the HMO and medical school shared responsibilities, more or less on an equal basis, in one-half of the case studies. In two other cases, the HMOs (both university sponsored) clearly took the lead, and in one instance the medical school took the lead. We note that, although the subcontract agreements were made with the universities, in five out of the six cases the HMO was either the clear leader or an equal partner in the educational effort. It is obvious that the medical schools realized at the outset that it is essential to involve the HMO at every step of the project. We recommend that in future undertakings of this nature, the HMO should be at least an equal partner.

2. Departmental lead - By departmental lead we mean the department in the medical school which led the curriculum development effort. We found that at three institutions the effort was led by the department of community medicine and at another institution it was led by the department of family medicine. At the remaining two institutions faculty members from the department of medicine played leading roles in the project, but the program was not initiated by the department.

3. Curriculum committee - We note that the curriculum committee of the medical school was actively involved in this project at two out of the four institutions in which the medical school participated. In fact, at each of the two institutions, the chairman of the curriculum committee directed this project. While the sample is too small to draw any objective conclusions, we believe that the involvement of this committee is desirable for legitimizing the program and publicizing its results.

4. Consumer involvement - We examined the extent to which HMO enrolees were consulted or involved in initiating or implementing this study at their respective institutions. At three institutions there was no evidence of any involvement and at the other three institutions the degree of consultation varied widely. Group Health Cooperative of Puget Sound was the only HMO where the Board of Directors formally approved participation in the program; Georgetown University consulted with the advisory boards and interviewed patients; and at RIGHA the degree of involvement of the Board of Directors is not specified, but during the site visit the Board members showed an awareness of the educational program and its ramifications. Although few objective conclusions can be made on the basis of this sample, we note that there was more consumer involvement among the independent HMOs as opposed to the university sponsored ones. Surprisingly, the HMO with the most extensive consumer participation (Group Health Cooperative of Puget Sound), is also the one with the most extensive educational programs.

We strongly recommend the early and full involvement of HMO enrolees or their representatives in efforts of this nature. They should be kept fully informed as to who is paying for the program, how much it costs, the degree of student supervision, and other relevant details. Failure to consult enrolees could lead to distrust, charges of being used as research material, or fear of inadequate student supervision. There is no reason to believe that a fully informed consumer would reject the program. In fact, the Group Health example is evidence to the contrary. Once members are made aware of the program benefits as well as the costs, consumers tend to be supportive.

5. Educational staff - We note that a majority of the participating institutions employed a professional medical educator to assist in the curriculum construction process. This is somewhat surprising since educators are not frequently employed in medical schools and, moreover, the employment of an educator was not a criteria, either explicitly or implicitly, for participation in the project. We found that their skills were extremely valuable at every stage of the curriculum construction effort. We recommend the employment of medical educators in future undertakings of this nature.

6. Behavioral objectives - Most of the institutions defined their curriculum objectives in behavioral terms, i.e., in terms that can be measured and

evaluated. We note the strong correlation between variables 5 and 6, the employment of an educator and the definition of behavioral objectives. The definition of behavioral objectives is the most crucial step in the curriculum construction process. Defined in sufficient detail, they constitute the content of the curriculum.

7. Conducted field test - We note that every institution implemented their program although this was not a requirement of the contract. The participating institutions realized that curriculum development without field testing is of limited value, and that the field test is an essential tool in initial evaluation.

WHAT DOES IT ALL COST?

As we indicated in Chapter 1, assessment of the educational costs in the HMO was not required under terms of the AAMC contract with DHEW, but was required under the terms of the AAMC agreement with the institutions. The AAMC felt that it was important to determine, to the extent possible, the cost of education, especially in an HMO. As long as the costs are unknown, there will be continued resistance to education - and justifiably so - on the part of HMO managers. Many HMOs are operating on a financially marginal basis and they must keep their rates competitive. An HMO manager cannot make an intelligent decision about the program unless he has some idea of its costs.

The major accomplishments in costing were the development of a conceptual framework for estimating the cost of education in an HMO and the preparation of three preliminary cost studies. The conceptual framework was developed by

Christine E. Bishop, Ph.D., and is presented as Resource Paper No. 14. Two of the case studies were conducted by the Seattle and Cambridge groups and are presented as Resource Papers Nos. 15 and 16. A briefer study prepared by the Rochester group is summarized in Chapter 3. Ideally, the conceptual framework should have been developed prior to the initiation of the cost studies. Unfortunately, because of time pressures and other unforeseen circumstances, Dr. Bishop was not employed until the studies were well underway.

The Conceptual Framework - An HMO-based education program produces not only costs, but also benefits to the HMO and its members. Unfortunately, the benefits are much more difficult to measure and estimate than the costs. Techniques for measuring such benefits as improved quality of care, increased staff satisfaction, or recruitment of high quality staff, are either not known at this time or are too expensive to implement. Bishop discusses some ways in which benefits may be taken into account.

Although costs are easier to measure, determining which costs are applicable is not as easy as it seems. To determine the cost of an education program we must ask ourselves the following questions:

1. *Whose* costs are we concerned with? If we are only interested in the cost of the education program to the *HMO*, then the students' transportation costs, for example, are not a program cost as far as the HMO is concerned. Neither is the medical school's administrative costs, although these costs are of great concern to the medical school. To keep the cost issue within manageable proportions, we decided early on in the project to consider only

the costs to the HMO.

2. What are the objectives of the HMO? How do the costs under consideration affect these objectives? The principal objective of most HMOs is to maximize the benefits to the membership, but this is not alwasy the case. The objective of a for-profit HMO is to maximize profits, while the objective of a physician-controlled HMO might be to improve the physicians' professional environment or standard of living. If the cost under consideration has no impact on the achievement of the HMO's objectives, it is not considered a cost.
3. What are the incremental costs of the education program? That is, what are the costs with the education program less the costs without the program?
4. How do we handle costs that are not easily measured?
5. What are the short-term versus long-term costs? For example, the space costs for a developing HMO, in which the facility is underutilized might, on a long-term basis, be considerably higher than current space costs.

A detailed discussion of these questions constitutes Bishop's conceptual framework.

The Cost Studies - The three cost studies constitute initial steps in the development of a cost methodology for measuring educational costs in the HMO. A summary of selected data from the three studies is presented on Table 8-5 on the following page. A cursory inspection of the table reveals that the data are not comparable and great caution should be used before drawing any conclusions. The University of Washington and Harvard University have continued their cost studies since the preparation of the initial reports and are now in the process of refining the data and updating their reports.

Table 8-5

THE COST OF EDUCATION IN THE HMO: TENTATIVE DATA

Institution	Educational Level	Number of Students	Duration	Costs
Genesee Valley Group Health Association	1st year medical students	12	13 half-days for 1 semester	$157 per student or $1880 for the course
Group Health Cooperative of Puget Sound	1st year medical students	175	2 half-days/ quarter, for 3 quarters	- 0 -
		8	1/2 day/week/ quarter	$4.30 per student-day o $225 for the course
	2nd year medical students	4	1/2 day/week/ quarter	$79 per student-day or $4,708 for the course
	3rd year medical students	1	40 days	$53.20 per student-day or $2,123 for the course
	Family Practice Residents	12	Not Available	$15,013/resident/year
HCHP-Cambridge Center	Internal Medicine Residents	4	6 months, full time	$2,100/resident/year*

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* Excludes productivity loss by preceptor resulting from time devoted to teaching. This accounts, in part, for the difference in resident training costs between Harvard and Group Health.

IS THE CURRICULUM ACHIEVING ITS PURPOSES? (EVALUATION)

The importance of defining clearly the objectives of the educational program was emphasized earlier in this report. Once the program has been implemented, we must ask ourselves whether the objectives have been met. Have the students learned about HMO's? Have their attitudes toward primary care changed? Have career plans changed as a result of the program? For if the program does not accomplish what it set out to do, either the program or the objectives need to be altered.

Although this was not required under the terms of the contract with DHEW, three institutions spent considerable time and energies in developing evaluation methodologies and two of these institutions actually field-tested evaluation instruments. The evaluation methodologies and their results are presented in Resource Papers Nos. 9-13. Brief summaries of these papers can be found in Chapters 3-5.

The three institutions, Penn Urb, GVGHA, and Group Health Cooperative of Puget Sound, used a variety of evaluation methodologies and instruments, each with its own advantages and limitations. The Penn Urb evaluation instruments, developed by Dr. Edwin Hutchins, were designed with two major purposes in mind: (1) For replicability in other HMO settings; and (2) For long range evaluation, especially with respect to career choice. To achieve replicability, each of the other participating institutions was requested to contribute test items that have general applicability to HMO-based educational programs. The results of the first field test on a group of 27 students indicated that additional work and testing is necessary. However, further developmental work was discontinued as of March 30, 1976, for lack of funding. The AAMC feels strongly that this effort deserves support and should be continued to its completion. Dr. Hutchins has expressed great interest in this and we hope some means can be found to support the continuation of his work.

The University of Rochester group developed a series of evaluation instruments which were field-tested on first-year medical students and two control groups (see Resource Papers Nos. 10-12). The evaluation design includes a comparison between the group of students which participated in the program and a group of students which did not participate and the results indicate that there were small but significant differences in a few areas. The evaluation methodology relies heavily on sophisticated statistical techniques, the analysis of which could conceivably cost more than the program itself.

The University of Washington group developed a series of nine evaluation instruments for its proposed clinical clerkship at Group Health. Most of the instruments were adapted from similar ones currently in use at the medical school. However, neither the instruments, which are presented in Resource Paper No. 13, nor the clinical clerkship for which they were developed have been field-tested. The package offers other institutions a rich selection of evaluation instruments, including instruments designed for student evaluation of faculty and course content.

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RESOURCE PAPERS

I. Curriculum Development Process

1. DESIGNING A CURRICULUM IN A CLINICAL SETTING: AN ITERATIVE PROCESS
   Charles G. Hertz, M.D., et al., (University of Pennsylvania), scheduled for publication in the October 1976 issue of the Journal of Medical Education.

II. Curriculum Content

2. A MEDICAL STUDENT'S GUIDE TO HEALTH MAINTENANCE ORGANIZATIONS
   John L. Simon, et al., (Georgetown University), June 1976.

3. A CURRICULUM FOR FIRST-YEAR MEDICAL STUDENTS: OBJECTIVES, SEMINARS, INTERVIEWS AND RECOMMENDED READINGS
   compiled from the University of Rochester's final report to the AAMC, December 1975.

4. CURRICULUM MODULES: RATIONALE, OBJECTIVES, METHODS AND PREREQUISITES
   from the University of Pennsylvania final report, December 1975.

5. PROPOSED CLERKSHIP FOR THIRD YEAR MEDICAL STUDENTS: OBJECTIVES, INSTRUCTIONAL METHODS AND EVALUATION
   Appendix J of the University of Washington final report, December 1975.

6. CLINICAL OBJECTIVES FOR A PRIMARY CARE RESIDENCY IN INTERNAL MEDICINE
   from the Harvard University final report, December 1975.

III. Instructional Methods

7. A ROLE GUIDE AND RESOURCE BOOK FOR CLINICAL PRECEPTORS
   John L. Simon, (Georgetown University), June 1976.

8. HMO CURRICULUM DEVELOPMENT: SOME RELEVANT INSTRUCTIONAL RESOURCES
   Arthur S. Elstein, Ph.D. and Jack L. Maatsch.

IV. Program Evaluation

9. REPORT OF EFFORTS TO DEVELOP A STANDARDIZED TEST OF KNOWLEDGE AND ATTITUDES RELEVANT TO THE HMO SETTING
   Edwin B. Hutchins, Ph.D., March 30, 1976.

10. AN HMO BASED PRIMARY CARE CURRICULUM FOR FIRST YEAR MEDICAL STUDENTS — DESIGN, EVALUATION AND DISCUSSION
    Paul L. Grover, Jr., et al., (University of Rochester), submitted for publication to the Journal of Medical Education, June 9, 1976.

11. ISSUES AND METHODS IN CURRICULUM EVALUATION
    Paul L. Grover, Ph.D., and Michael M. Ravitch, Journal of Medical Education, December 1975.

12. EVALUATION INSTRUMENTS
    from the University of Rochester final report, December 1975.

13. PROPOSED EVALUATION INSTRUMENTS
    Appendix K of the University of Washington final report, December 1975.

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    Christine E. Bishop, Ph.D., January 1976.

15. COST BENEFIT ANALYSIS
    Section V of the University of Washington final report, December 1975.

16. MEASURING THE COSTS OF PRIMARY CARE RESIDENCY TRAINING
    Part III of the Harvard University final report, December 1975.

Resource Paper No. 1

DESIGNING A CURRICULUM IN A CLINICAL SETTING: AN ITERATIVE PROCESS

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ABSTRACT

A curriculum for the training of medical students was designed and implemented in a functioning clinical setting. The multi-disciplinary, multi-professional staff of a primary care center participated with professional educators in an iterative process for curriculum development. A three-stage plan was conceived: behaviorally oriented educational objectives were constructed, instructional methodologies to satisfy these objectives were created, and evaluation instruments were designed. Throughout each stage, the educators facilitated the process by teaching the staff the necessary techniques for the design and implementation of the curriculum. The curriculum that resulted from this process is focused on those issues that are important to team delivery of primary care. An important outcome of the project is the increased enthusiasm and competence of the professional staff in the teaching of students in the health professions.

DESIGNING A CURRICULUM IN A CLINICAL SETTING: AN ITERATIVE PROCESS

INTRODUCTION

The patterns of health care delivery in the United States are undergoing major changes.[1,2] In settings such as HMOs, teams of professionals from various fields are working collegially to provide comprehensive and efficient health care.[3] At the same time we are witnessing the emergence of the patient as an active and knowledgeable consumer of health care.[4,5] However, medical school education has done little in training physicians to meet the demands of participation in alternative forms of health care delivery.[6,7]

As a way of encouraging medical schools to become more actively involved in teaching the changing patterns of health care delivery, DHEW awarded a contract to the Association of American Medical Colleges "to support the development of curriculum for physician training in academic medical center HMOs." The concern underlying this award follows: "If HMOs are to expand and become a viable alternative system of health care, appropriately trained manpower must be available."

This paper describes the process by which one University related HMO, the Penn Urban Health Maintenance Program (Penn-Urb), met the terms of the Association of American Medical Colleges grant. The project was an attempt to enrich medical education by creating a new curriculum that would prepare medical students to function knowledgeably and enthusiastically in multi-professional primary care settings. This curriculum was designed through the use of an iterative process involving both professional educators and health care providers in a functioning clinical setting.

SETTING

The Penn Urban Health Maintenance Program is a primary care center located in urban Philadelphia. Comprehensive primary health care is provided to a socio-demographically heterogeneous population through both the prepaid capitation and fee-for-service financing mechanisms. Penn-Urb is a multi-disciplinary, multi-professional group organized in teams in the primary care disciplines: health care for adults, health care for children and adolescents, health care specific to women, psychosocial health care, and dental health care. The multi-professional staff is composed of physicians, nurse practitioners, a physician's assistant, dentists, a social worker, an economist, a sociologist, a librarian, and an educator, as well as clerical and technical support staff.

Since Penn-Urb has been operational for less than three years, its clinical staff is sufficiently small to function as a unified group. Currently, that staff, which consists of three internists, two pediatricians, an obstetrician-gynecologist, a psychiatrist, four nurse practitioners, a physician's assistant, a social worker and two dentists, provides 18,000 patients visits a year. The patient population is currently increasing at a rate of approximately 5% a month.

Penn-Urb, which is sponsored by the University of Pennsylvania, was formed as a model unit; as such, it is a setting in which education and research, as well as service, are integral components of the organization. Although the professional staff considers student education a legitimate organizational function, it regards direct patient care as its most important and challenging function.

The project described here was designed to improve the quality of education offered to the students by the health care providers. The professional educators assumed that the more involved the health care providers became in the process of curriculum design, the more their enthusiasm for participating in the educational endeavors of the organization would increase. Since at the start of the project, many of the health care professionals regarded education of students as a burden, an iterative process served to involve them gradually in curriculum development. At each stage of the project, professional educators worked with small groups of health professionals to teach them the educational principles on which a curriculum is built. Frequent short meetings between the educators and the health care providers were planned for several reasons. The demands of the practice made long contacts difficult to schedule. Also, the amount of educational information to be transmitted to the providers would have been overwhelming unless presented gradually. The iterative process allowed an opportunity for the educators to reinforce the providers' growing educational competence and interest during each stage of the project.

The Association of American Medical Colleges contract mentioned earlier specified that the University "would undertake to work in the development of curricula for training medical students in the University affiliated health maintenance organization (HMO)."

The scope of the project was broadened at Penn-Urb, however, to allow the training of other health professionals in a multi-disciplinary, multi-professional team setting.

PLAN

A 3-stage plan was conceived to carry out the curriculum design project.

1. Initial decisions would be made about the scope of the content domain.
2. The specific items to be included in the curriculum would be classified according to a standard taxonomy of educational objectives.[8,9]
3. Detailed curricular plans were to be designed to meet the educational objectives.

The medical coordinator of Penn-Urb, who was also the project director, made several decisions at the outset of the project. The first was that the technical knowledge essential to the development of a sound curriculum should be provided by an expert in the field of education. It was felt that health care providers generally lacked the necessary training to design the truly innovative curriculum that was called for. Further, an explicit goal of the project was to upgrade the teaching competence of the health care professionals through their participation in the design and delivery of the curriculum. Therefore, a search was conducted for a professional in the field of medical education who had previous experience in stimulating cooperation among educational experts and several types of health professionals. He was to work with the project as a consultant, charged with the responsibility for implementing the overall plan. The educator at Penn-Urb became the educational coordinator for the project, and assumed responsibility for the daily supervision of the project.

Another decision was made to include the entire professional staff in the project's design and implementation: A rationale of the project was to increase the interest of the staff in the teaching of medical students, but since these medical students were to be trained to function as members of multi-professional teams, it was also considered important for them to be exposed to all professionals, not simply to physicians.

Those aspects of medical education that are part of the traditional medical school curriculum were not to be included in the Penn-Urb curriculum. The educational focus of the Penn-Urb curriculum was to be on the unique features of the delivery of health care in a rationally designed multi-professional primary care setting. As such, it would be potentially applicable to health professional students from fields such as nursing, social work, health care administration, the allied health professions and dentistry.

CREATION OF EDUCATIONAL OBJECTIVES

Efforts were made to involve the professional staff as early as possible. A rough outline of possible curriculum items was generated by the educators. The items were divided into six sections:

1. Primary health care/comprehensive care: definitions and characteristics of the system.
2. The health care team: roles and responsibilities of different health care practitioners in a primary health care team.
3. Active consumer participation in an organized health care setting.
4. One quality health care for all.
5. Economics of HMOs.
6. Sociologic viewpoint on innovation and organizational change.

The curriculum items were presented in a behavioral objectives format. This rough notion of a curriculum was intended to generate criticism and comment from the professional staff. The behavioral format was introduced so the educators could discuss with the staff the importance of behaviorally stated objectives as the basis of a rationally designed curriculum. As an example, one item in section 1 of the original outline follows:

1.2 The student should be able to articulate the impetus for the development of organized systems of health care delivery, in terms of

    1.21 Maldistribution of service

    1.22 Overspecialization

This set of objectives was presented to the staff in a series of structured interviews between pairs of professionals and an educator. The staff members were asked to comment on the relevance and correctness of each item. They were then asked to generate other items they considered essential to the curriculum. These interviews also provided an opportunity for the educators to explain the rationale guiding the project, the strategies involved in writing behavioral objectives, and the steps that would be taken to complete the project.

When the interviews were completed, the educators rewrote the educational objectives in line with the staff's feedback. This new document was then circulated among the staff for further revision and comment. Once again, the Penn-Urb staff suggested many changes that were incorporated into a third version of the objectives. Its substantive comments indicated that the iterative process had, in fact, proved successful in involving them in the curriculum development. It was obvious both to the educators and to the health care providers that the objectives now reflected educational material that the providers actually wanted to teach to the students. As an example of the scope of the revision provided by the professional staff, the final form of the educational objectives for the previous example follows:

1.2 Given an open-ended question on health care delivery in America, the student should be able to state the following factors underlying the development of HMOs.

  1.21 If asked about the distribution of health care the student should be able to indicate the range of patient/physician distribution.

  1.22 If the student is asked to describe the role of the profit motive in shaping traditional private practice, he should be able to do so.

1.23 The student should be able to answer questions on the U.S. commitment to health care delivery using comparative material from other national systems.

DESIGN OF INSTRUCTIONAL TECHNIQUES

Meetings of the entire professional staff of Penn-Urb were also used by the educators to teach the staff how to design instructional modes to meet the educational objectives. The process of matching instructional strategies to particular objectives was detailed,[10] and many examples of instructional methodologies were provided. The staff was asked to divide into groups, each of which was charged with refining the objectives for a specific section of the curriculum and creating the methodologies for that section. The six groups met approximately twice weekly until the task was completed. At each group meeting, an educator was present to facilitate the progress of the group.

During the group meetings, the educators once again described the range of available instructional modes. Many instructional options were presented to the groups, including the creation of audio-visual materials, the construction of bibliographies, and opportunities for students to participate with multi-professional teams in the provision of health care. The groups were encouraged to match educational modes to fit the content of each objective. The educators also stressed the advantages of active participation, rather than passive listening, for the learning process.

THE CURRICULUM

An innovative curriculum useful in a variety of formats resulted from this project. The Penn-Urb staff offers three courses to undergraduate medical students: a one-week intensive interdisciplinary lecture course, a longitudinal course in which the student participates in the care of selected families, and a one-month clerkship at Penn-Urb. The clerkship was chosen as the focus of the curricular effort because it presents the opportunity for most intensive exposure to Penn-Urb. The clerkship, an elective experience offered to undergraduate medical students who have completed the basic clinical courses, now provides a structured, intellectually stimulating experience, as well as clinical practicuum in primary care, as a result of the curriculum development project. The enriched curriculum is typified by Section 4, entitled "One quality health care for all." A pediatrician, an adult nurse practitioner, and a physician's assistant were responsible for the design of the instructional techniques for this section. This group decided that the medical students should learn how well the health care system in the United States meets (or does not meet) four criteria: accessibility, accountability, continuity, and comprehensiveness. To meet this objective, several strategies were adopted. A bibliography on the state of the current health care delivery system in the United States was assembled. After the students complete the reading, they are asked to interview three patients at Penn-Urb about the quality of their current and past settings for health care with respect to the four criteria. A structured interview form for student use was created by the professional group. After the students interview patients, they view a videotape made by the group who designed this section of the curriculum. The tape contains in-depth interviews with three patients of different socio-economic classes concerning their successes and failures in obtaining satisfactory primary health care. The last step for the students is a meeting with the members of the staff to explore reactions to the issues raised by this section of the curriculum.

Since Penn-Urb's organizational structure presents a unique opportunity for medical students to participate in the team delivery of health care, the section entitled "Health care team" is a central component in the curriculum. There is a bibliography available on the roles of the non-physician providers in the delivery of health care, and the students spend approximately 1/3 of their time at Penn-Urb working with these kinds of providers. The specific contributions of the non-physician providers to the health care of the patients are emphasized. Further, the active participation of the entire professional staff in the presentation of the curriculum reinforces the notion of nurse practitioners, physician's assistants, and social workers as colleagues.

Although the professional staff was asked to focus on the medical student clerkship in its curriculum design efforts, the instructional strategies were easily adapted for other uses. The staff at Penn-Urb has offered a course to students from several health professional schools at the University of Pennsylvania. The course, which is entitled "Introduction to Comprehensive Health Care Systems," is taught twice yearly as an intensive one-week experience to medical, dental, nursing, allied health professions, health care administration and social work students. The educational objectives served as a guide for the organization of the course, and the instructional strategies were adapted for use with a large group wherever possible. Another benefit of the curriculum project was that each member of the staff was prepared to teach some part of the course and can therefore participate substantively in the course.

EVALUATION

The iterative process used in the curriculum planning extended as well to the evaluation design. Initially, the educators described to the provider staff their previous experience with evaluation of medical students, especially with respect to career attitudes, career choices, critical incidents, medical school environment, and interpersonal perceptions as measured by semantic differential.[11,12]

The staff, in dialogue with the educators, then proposed areas for evaluation, based on the educational objectives of the curriculum. It was decided that evaluation should focus on areas such as:

- attitudes toward various types of careers within medicine,
- attitude measures relating to other health care team members,
- tests of knowledge about specific aspects of primary comprehensive care and HMOs.

The educators specified the most appropriate formats for testing, and the health care providers assumed the responsiblity for generating the pool of questions from which the final testing tools were created. The product of this iterative exercise is a series of evaluations which provide diagnostic and summative evaluative data.

RESULTS

The curriculum development project was successful in meeting the initial plan. A curriculum for the medical student clerks was developed; this curriculum has been adapted easily to the requirements of the lecture course taught by the Penn-Urb staff. The objectives are an explicit statement of the curriculum content that the Penn-Urb staff feels it should teach to students in the health professions. Since the educational objectives of Penn-Urb are now specific, as new opportunities to offer courses arise, Penn-Urb has available the basis of a sound curriculum on which to build. Further, the objectives will serve as the core around which a curriculum for students in the other health professions will be constructed. The core contains cognitive and affective objectives that are applicable to students from many disciplines; what remains to be designed are those objectives that will focus specifically on the roles of the non-physician professionals in the clinical setting.

It would appear that including the entire professional group in the design of the curriculum for medical students contributed significantly to the success of the project. The educational objectives embody a broader range of topics than they would have had they been created by the educators and physicians alone.

Another outcome of the project is that the professional staff has become more directly involved in the process of educating medical students. As the Penn-Urb staff has participated more fully in the educational planning of the organization, its commitment to providing education has also increased. The overall result is that a structured, substantial curriculum is now being offered enthusiastically to students at Penn-Urb.

ACKNOWLEDGEMENT

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Resource Paper No. 3

A CURRICULUM FOR FIRST YEAR MEDICAL STUDENTS *

Curriculum Objectives

The Seminars

Student Interviews with GVGHA Department Chiefs

Recommended Readings

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* From the University of Rochester Final Report
Project To Develop Curriculum For Physician
Training in HMOs

CURRICULUM OBJECTIVES

Curriculum Objectives:

A. Cognitive Objectives - By the completion of and consistent with the material presented in the course, the student should be able to:

1. Define the structure and/or describe the function of the following primary care system components:

   Primary Care
   Family Medicine
   Urgent Visit Clinic
   Pre-paid Group Practice
   Centralized Appointments
   Financing, Marketing, Hospitalization

2. Describe the function of the following personnel:

   Nurse Practitioner
   Primary Care Physician
   Medical Social Worker
   Medical Secretary
   Receptionist
   Patient Advocate
   Dietician
   Medical Specialist
   Staff Nurse
   Licensed Practical Nurse
   House Officer
   Intern
   Optometrist
   Physical Therapist
   Occupational Therapist
   Psychiatrist
   Psychologist

3. Describe and contrast in written form the structure of at least three types of Health Maintenance Organizations, including One Closed-Panel Prepaid Group and One Open-Panel Foundation, as to:

   Financing
   Organizational Hierarchy
   Marketing
   Hospitalization
   Legal Basis

4. List the standard procedural steps for a) Client Registry and b) Patient Processing at the HMO.

5. Observe and describe in written form the process whereby at least two clients joined the HMO including the following phases:

   Forms of initial contact
   Comparison of formats
   Bases for decision
   Administrative processing

6. Collect through interview and describe in written form those expectations which at least one patient held for the following HMO staff before and after receiving care:

   Primary Care Physician
   Medical Specialist
   Nurse Practitioner
   Receptionist
   Other Staff Encountered

7. Observe and describe in written log form the process whereby at least one client entered and was served by the HMO for a) routine examination and b) specific complaint, including the following components:

   a. Reasons and timing/presenting complaint
   b. Telephone number
   c. Appointment mechanism
   d. Entry points
   e. Identifying information
   f. Sequence of HMO personnel contacted including their decisions and actions
   g. Mechanisms to detect unidentified illness and monitor personnel performance
   h. Any shift or conflict in patient expectations

8. Construct a written operational analysis of the roles and relationships of the HMO staff including:

   a. Division of labor
   b. Hierarchy of patient distribution
   c. Referral decision points
   d. Ranges of diagnostic specificity
   e. Administrative accountability

9. Construct a written operational analysis of the tasks of the primary care physician including clinical examples of the following components:

   a. The setting in which the physician/patient encounter takes place
   b. Assessing initial complaint through observation of patient's behavioral and physical characteristics
   c. Forming first order hypotheses
   d. Hypothesis testing by further interview, physical examination, laboratory and special diagnostic procedures
   e. Assessing psycho-social health modifiers
   f. Weighting complaints
   g. Describing relevant social context
   h. Identifying and classifying problems (Weed)
   i. Forming specific diagnoses

10. Analyze deficiencies and propose corrective measures relative to the availability, continuity and comprehensiveness of care, given:

    a. At least two case histories containing care system inadequacies
    b. The HMO under study

B. Affective Objectives

1. Attitude Questionaire - Maintain or increase Post vs. Pre score on:

    a. Attractiveness ranking of specializing in Internal Medicine, Pediatrics, or Family Medicine as compared with other specialties
    b. Ranking of care availability, continuity and comprehensiveness as compared to other characteristics
    c. Osgood Semantic Differential applied to Role of Primary Care Physician, Nurse Practitioner, Health Maintenance Organization
    d. Ranking of importance of HMO personnel as in comparison with other health and non-health related professionals

2. Unobtrusive measures - For validity, students will not be informed of the following measures of the course's impact:

    a. At least 50% of participating students will select HMO elective experience in second year
    b. At least 50% of participants will spend at least 1hr/wk above required class hours at Wilson Center
    c. The scope and degree of detail of course projects produced by HMO elective students will voluntarily exceed that of projects produced by 80% of students choosing other task force options

3. Course evaluation questionnaire - student ratings of:

    a. Course and
    b. Instructors for the first year course in Community Medicine, HMO subgroup will equal or exceed these ratings given by 80% of the course's other task forces

THE SEMINARS

CURRICULUM OUTLINE

First Seminar - Organization of Group Practice

- 1.1 Entitlement
    - 1.1.1 Expectations in the doctor/patient relationship
    - 1.1.2 Private practice
        - .1 No legal requirement to continue care
        - .2 Payment expectation not certain
    - 1.1.3 Prepaid group practice - mechanism to firm up expectations on both sides of doctor/patient relationship

- 1.2 Prepaid Group Practice Organization
    - 1.2.1 Diagram of Genesee Valley Group Health Association (GVGHA) organization
    - 1.2.2 Contractual relationships between insurer, consumer and providers
        - .1 Balance of services with premium cost
        - .2 High premium costs and the self-defeating spiral of rising costs
        - .3 The medical group at risk
        - .4 Risk forces efficiency
        - .5 Internal mechanisms for care delivery
        - .6 Insurer's functions (capital, advertising)
        - .7 Entitlement ("contracted benefits", representation in plan operation)
    - 1.2.3 Distribution of premium income
    - 1.2.4 Critical enrollment level

- 1.3 Medical Foundation Plan
    - 1.3.1 Diagram of foundation plan
    - 1.3.2 Characteristics
        - .1 Similar to traditional free enterprise
        - .2 Insurer's benefits extended to office care
    - 1.3.3 No controls on costs such as hospitalization
    - 1.3.4 Limitations on free market controls
    - 1.3.5 Illness-skewed population and cost overruns
    - 1.3.6 Risk

- 1.4 Rochester Blue Cross/Blue Shield
    - 1.4.1 Membership (85% of population)
    - 1.4.2 Basic coverage - essentially hospitalization
    - 1.4.3 Governing board - industry representatives
    - 1.4.4 Industry - Premiums, hospital costs
    - 1.4.5 Blue Shield
        - .1 Founded by health providers
        - .2 Governed primarily by surgeons
        - .3 Repayment and specialty interest

1.4 Rochester Blue Cross/Blue Shield (Con'd)
1.4.6 Major medical supplements
1.4.7 Blue Cross/Blue Shield and local governance

1.5 Peer review
1.5.1 Necessary to control quality
1.5.2 Allows decentralized control

1.6 Summary
1.6.1 U.S. health care - 8% of GNP
.1 Tax dollars - 50%
.2 Consumer and government objections
1.6.2 Efficient health care organization as an answer

Second Seminar - Financing of Group Practice

2.1 Goal: Economy of scale allowing self-perpetuation

2.2 Organization phases
2.2.1 Preoperational
2.2.2 Deficit
2.2.3 Operational

2.3 Evolution of GVGHA
2.3.1 Rochester Blue Cross/Blue Shield versus excess hospitalization
.1 Factors encouraging hospital construction
.2 Hospitals and increasing health care costs
.3 Bases for comparison (beds/1000 population, hospital day utilization rate)
2.3.2 Rochester Blue Cross/Blue Shield and group health alternatives

2.4 Preoperational phase
2.4.1 Community study committee
2.4.2 Preoperational planning

2.5 Deficit phase
2.5.1 Boundaries: First patient to self-perpetuation
2.5.2 Cash reserves necessary
2.5.3 HMO and the health care community
2.5.4 Controlling hospital day utilization
.1 Savings to Blue Cross/Blue Shield
.2 Limiting referrals
.3 Pressures for hospitalization in private practice
2.5.5 Costs
.1 Facilities
.2 Basic Service Group
.3 Administration
.4 Advertising

- 2.6 Operational phase
  - 2.6.1 Definition: Member fees = Expenses
  - 2.6.2 Critical mass: 30,000 population
  - 2.6.3 A cross section of population necessary

- 2.7 GVGHA and alternative plans
  - 2.7.1 GVGHA a true HMO
  - 2.7.2 Neighborhood health centers (NHC) dependent on federal subsidy
  - 2.7.3 Medical foundation - economically unsound

- 2.8 HMO attrition
  - 2.8.1 Inadequate funding
  - 2.8.2 Lack of administrative systems

Third Seminar - Facilities Development

- 3.1 Planning Group Health Ambulatory Care Facilities
  - 3.1.1 Predictions from population statistics
  - 3.1.2 Maximum population for one center: 30-40,000
  - 3.1.3 Accessibility
  - 3.1.4 Adaptability to unpredicted needs
  - 3.1.5 Services mandated by law

- 3.2 Satellite Expansion
  - 3.2.1 Regional dispersion
  - 3.2.2 Primary care staff only
  - 3.2.3 Capital accumulation difficult
  - 3.2.4 Static HMO → Population growth →Overcrowding →Decline in care
  - 3.2.5 Efficiency increases up to 100,000 members
  - 3.2.6 Projected local sites
  - 3.2.7 Problems of medical records
  - 3.2.8 Advance planning and construction avoids overcrowding
  - 3.2.9 Problem: When stop expansion for profit taking?
  - 3.2.10 Expansion increases impact on hospitalization

- 3.3 Facilities costs - Wilson Center
  - 3.3.1 Construction - $3.2 million - $[illegible]0/square foot
    - .1 90 examination rooms
    - .2 Modular design
    - .3 Based on Kaiser Portland program
  - 3.3.2 Operation: Utilities, maintenance, rent

- 3.4 HMO and hospital cooperation
  - 3.4.1 HMO can predict hospitalization rate
  - 3.4.2 From this the hospital can plan census and adjust capacity

3.5 Costs of Rochester Health Plan alternatives, 1975-76
3.5.1 GVGHA - close to basic Blue Cross/Blue Shield
3.5.2 NHC - significantly more
3.5.3 Medical foundation - premium has doubled - skewed patient population
3.5.4 Risk sharing - necessary component of HMO

3.6 Student Questions
3.6.1 Q: Role of Psychiatrists at GVGHA?
A: Consult and treat psychosomatic as well as frank psychiatric problems
3.6.2 Q: Urgent visit mechanism?
A: Phone triage by nurse, physician reserved for same day appointments
3.6.3 Q: Is GVGHA enrolling a younger population than overall Blue Cross/Blue Shield? Will costs rise when older population admitted?
A: No, enrollment profile not different. No, 20-44 age bracket use significant number of OB beds. Fifty percent of last month's hospitalization OB.
3.6.4 Q: Pattern in failure to re-enroll?
A: No, termination rate less than 1%
3.6.5 Q: Loss ratio?
A: Amount used for benefits compared with administrative costs - GVGHA loss ratio 94%, objective 96%

Fourth Seminar - Staffing for Comprehensive Health Services

4.1 Student knowledge and attitudes regarding health care givers
4.1.1 What is an optometrist? (Few students knew)
.1 Specialized in-depth training
.2 Comparison with ophthalmologist, optician
.3 Legal restrictions and professional collusion result in underutilization
4.1.2 Restrictions and underutilization common among health professions
.1 Example - nutritionist, at GVGHA counsels and consults
.2 Example - nurse clinician (general ignorance among students regarding nursing)
4.1.3 Emphasis - physician ignorance of other care givers

4.2 Comprehensive health care (CHC)
4.2.1 Even the best systems have limitations
4.2.2 Definition - local resources and source of list determine definition
4.2.3 Need to shift from medical care to health care
.1 Health insurance deals with "cure" problems
.2 Most resources needed for "care" problems
4.2.4 C.H.C.Team - 50% medical, 50% other personnel (care based on need, not prerogative)
4.2.5 Benefits - monitoring of performance and varied inputs

4.3 GVGHA staff organization
- 4.3.1 Executive committee - represents all services, determines staff policy
- 4.3.2 Physicians share control
- 4.3.3 Role determination
  - .1 No job descriptions
  - .2 Freedom to assume care roles
  - .3 Regulation by personal responsibility and internal accountability
- 4.3.4 Flexible system - skills given by as many people as possible
- 4.3.5 Emphasis - physicians will soon be forced to work with, not above, other health professionals

4.4 Physician - Nurse Clinician teams
- 4.4.1 A colleaguial relationship of peer professionals
- 4.4.2 Each provides unique knowledge and skills
- 4.4.3 Team example - 55 year old male, uncontrolled hypertensive. Physician considered raising medication, nurse clinician recommended working on home stress and diet before more medication.
- 4.4.4 Nurse Clinician diagnoses psychosocial aspects of problems
- 4.4.5 First patient contact - either physician or nurse
- 4.4.6 Nurse clinician as counselor
  - .1 Time less expensive than physician's
  - .2 One-third less patients for longer periods
- 4.4.7 Nurse clinician manages routine problems (e.g. vaginitis, sore throat, family planning)
- 4.4.8 The patient as part of the health team
- 4.4.9 Nurse clinician capable of 80% routine physician tasks

4.5 Primary care
- 4.5.1 Diagnoses seldom easy, clean or definitive
- 4.5.2 Medical school preparation
  - .1 Emphasis on explanation of every sign and symptom
  - .2 Unrealistic for primary care - can't explain everything
- 4.5.3 Clinical judgment replaces complete explanations
  - .1 Nursing training for primary care
  - .2 Long term observation and assessment of critical factors
- 4.5.4 House officer dependency on technology
  - .1 Overuse of lab tests
  - .2 High cost substitute for analytic thinking
- 4.5.5 Primary care learned by dealing with people

- 4.6 Effect of staff organization on care
  - 4.6.1 After hours call rate - 30% of other groups
  - 4.6.2 30% of services from non-physicians
  - 4.6.3 Per client visits per year - 3.91
  - 4.6.4 Substitution of non-physician services saves members money

- 4.7 Nursing
  - 4.7.1 Types of nursing education - Midwife, LPN, RN(types), MNP, PNP
  - 4.7.2 MNP and PNP - Nurse with physical assessment skills
  - 4.7.3 Primary care nursing - coordination of care for comprehensiveness and continuity
  - 4.7.4 The legal definition and redefinition of nursing
  - 4.7.5 The nurse's "right" to practice some skills now defined as "medical"

Fifth Seminar - Consumerism and Group Practice

- 5.1 Rise of consumerism
  - 5.1.1 Traditional physician control of health care system
  - 5.1.2 Lack of consumer involvement
  - 5.1.3 Need for cost containment
  - 5.1.4 Unification of consumer special interest groups
  - 5.1.5 Possible physician/consumer relationships
    - .1 Cooperative synthesis
    - .2 Continued adversaries

- 5.2 Consumerism as a corrective mechanism
  - 5.2.1 Traditional situation - malpractice suit the only corrective feedback
  - 5.2.2 Limitations of free market mechanisms
    - .1 "closed" practices
    - .2 M.D. shopping discouraged

- 5.3 Problems of consumer education
  - 5.3.1 Example - Yale-New Haven trained community workers to inform members regarding health care and costs
  - 5.3.2 Informing labor leaders
  - 5.3.3 Question of physician responsibility
  - 5.3.4 Reluctance of patients to question

- 5.4 The consumer's role in health care
  - 5.4.1 Definition of needs, not means of delivery
  - 5.4.2 Misapplication of pressure on delivery mechanisms
  - 5.4.3 Delivery mechanisms the professional's responsibility
  - 5.4.4 "The better the system, the fewer (more appropriate) appointments" GVGHA 2.8 physician visits/year, 1.1 non-physician visits/year; nationally 4.5

- 5.5 Malpractice
  - 5.5.1 Lawyers view as quality control mechanism
  - 5.5.2 Suit frequency and amount proportional to resources
  - 5.5.3 The decline of auto liability and rise of malpractice as sources of lawyer income

Sixth Seminar - Clinical Problems in the Primary Care Setting

- 6.1 Differential Diagnosis of Strep Throat (Pharyngitis)
  - 6.1.1 Sign: observed, objective data
  - 6.1.2 Symptom: subjective data, reported by patient
  - 6.1.3 Example: typical signs and symptoms of strep throat
  - 6.1.4 Aspects of fever: significance, sites
  - 6.1.5 Array of possible diagnoses
  - 6.1.6 Tests useful in differentiation: incl WBC
  - 6.1.7 Other differential signs: liver, spleen, adenopathy

- 6.2 Problems of primary care diagnoses and treatment
  - 6.2.1 Presenting symptoms outnumber signs
  - 6.2.2 The quest for "objective" data: laboratory tests and surgery
  - 6.2.3 Diagnosis and treatment on the basis of symptoms
    - .1 Appropriate in ambulatory care
    - .2 Reliance on the body's healing processes
  - 6.2.4 "Sequellae of intervention fequently more serious than most disease processes"
    - .1 Johns Hopkins study: 40% medications given in error
    - .2 Strep throat: penicillin may be more dangerous than natural disease process
    - .3 Symptomatic treatment: conservative, most conditions self-limiting

Seventh Seminar - Marketing Group Health Insurance

- 7.1 Advertising
  - 7.1.1 Mass media costs
  - 7.1.2 Alternatives to mass media
    - .1 Targeting on-site presentations to certain populations
    - .2 Member recommendations to co-workers
    - .3 Open house nights

  - 7.1.3 "Service sells, not advertising" - Sloan Institute study: Peer information process most important in health care decisions

7.2 Physician involvement in marketing limited

7.3 Group health and industry
- 7.3.1 Many industries restrict on-site promotion
- 7.3.2 Efficient HMO offers savings for employers
- 7.3.3 Allows employers to offer a choice of benefits

7.4 NHC and GVGHA - Two health care plans in competition
- 7.4.1 Simultaneous marketing confuses consumers
- 7.4.2 NHC and its advertising designed for inner city population - no threat to suburban physicians
- 7.4.3 GVGHA population a cross section of Monroe County
- 7.4.4 NHC
  - .1 High federal subsidy allows inefficiency
  - .2 Population 5% prepaid - not organized for prepaid practice
  - .3 A federation of independent centers
  - .4 Administrative costs - 45%, GVGHA's 9%
- 7.4.5 NHC a federation of independent centers
  - .1 Duplication of administration
  - .2 Each local community group pressed for complete services; therefore, redundancy of expensive secondary services (inappropriate consumer control)
- 7.4.6 GVGHA services located in one facility, NHC refers client to specialists outside organization

Eighth Meeting - Patient Home Visits (Preceptor and three students)

8.1 Student #1 - Patient, Mr. M.S.

Mr. M.S. is a 50-year-old caucasian male. Diagnosed approximately four months ago with cancer of the lower GI tract. Excision of the primary lesion and the lower portion of the rectum gave remission of symptoms for approximately two months. He was rehospitalized two weeks ago with extreme lower back pain radiating posteriorly down the legs. Preceptor feels the prognosis is poor.
His pain is relieved only by closely regulated large doses of a morphine derivative in hospital. He seemed in relatively good spirits and comfortable with the hospital care. Each student asked questions about his symptoms.

8.2 Student #2 - Patient, Mrs. M.B.

Mrs. M.B. is a 52-year-old black female diagnosed with hypertension and renal failure within the last month. She has started dialysis at Rochester General and now is dialyzed three times a week. Student interviewed the patient for approximately ten minutes, tracing the history of her problems over the last ten years. Preceptor palpated her ankles and asked several questions regarding her progress.
Mrs. M.B. was concerned about taking a two week vacation to visit relatives in a southern city. Preceptor said he would call ahead and make arrangements with a hospital for continued dialysis.

8.3 Student #3 - Patient, Mr. C.

Mr. C. is a 67-year-old white male with chronic atherosclerotic heart disease and a neurological deficit, probably due to atherosclerosis. He retired three or four years ago, after a number of minor heart attacks and is now confined to a wheelchair. Mr. C's neurological deficit effects his legs and speech. He also has diabetes. Within the last year his wife has suffered a minor heart attack which required that she be hospitalized while Mr. C. was placed in a nursing home. While at the nursing home for three of four weeks a therapist succeeded in reambulating him to some extent. Preceptor is concerned that he continue to walk as much as possible. The student asked several questions regarding Mr. C's condition and medication.

8.4 Assignment: Following visits with all patients, preceptor assigned students to study their chart and construct a history of their illnesses.

8.5 Student Comments
- 8.5.1 Preceptor "..is evidence contradicting those who say that internal medicine and primary care are not challenging fields."
- 8.5.2 The student amplified, saying that his parents and others in his family expect him to become a specialist, and he has argued the value and challenge of primary care as a field.
- 8.5.3 Other students have also expressed increased understanding of the challenges offered by internal medicine and primary care.

Ninth Meeting - Primary Care Task Force Reports (Medical Center Recall Session)

9.1 Metropolitan Hospital Group Practice
- 9.1.1 Patient contact mechanism
    - .1 Students make first contact by phone
    - .2 Interview times difficult to arrange
    - .3 Patients suspicious of medical students' motives
    - .4 Student frustration - "Problems could have been avoided by preceptor contact"
- 9.1.2 Contact with health care professionals (HCP)
    - .1 No continuous contact
    - .2 Wide range of different H.C.P.'s

9.2 Urban Family Practice Group
- 9.2.1 Patient contact
    - .1 A patient assigned to each student
    - .2 Minimum of one home visit
    - .3 "Overall little patient contact"
    - .4 Elementary school mental health screening
- 9.2.2 H.C.P. Contact

9.3 Inner-City Health Center
- 9.3.1 Patient contact - limited to observing one patient in the system. Will not be assigned a patient.
- 9.3.2 H.C.P. Contact
  - .1 Administrators
  - .2 Community Services
  - .3 Public health nurse - Difficult to arrange meeting

9.4 Residential Neighborhood Health Center
- 9.4.1 Patient contact - soon to be assigned
- 9.4.2 H.C.P. contact - continuous experience with a physician
- 9.4.3 A few small research projects begun

9.5 GVGHA
- 9.5.1 Patient contact - patients assigned to individuals. Many contacts already made. Preceptors involved.
- 9.5.2 H.C.P. contact - Continuous contact with physician preceptor plus interviews with range of H.C.P.'s

Tenth Seminar - Planning Student Clinical Presentations

10.1 Assignments

Student #	Patient	Patient Problem
1	Mr. M.S.	Ca colon, terminal
2	Mrs. M.B.	Renal failure
3	Mr. C.	Chronic atherosclerosis with neurologic complications
4	Mrs. E.W.	Ca breast, spinal metastases
5	Mr. F.U.	Minor CVA
6	Mr. H.	Post-second CVA, chronic emphysema
7	J.F.	Ten-month old, developmentally retarded
8		
9	D.F.	Eight-year old with nephrotic syndrome
10	A.S.	Four-year old, mild mental retardation
11	W.D.	Adolescent, Sydenham's Chorea
12	T.V.	Twenty-month old, spina bifida

10.2 Presentation format
- 10.2.1 Briefly present the clinical entity
- 10.2.2 Summarize identifying data relevant to patient and family, including age and family constellation
- 10.2.3 Present a brief history of the clinical problem, including sequential onset, high points of course, present status
- 10.2.4 Characterize the health care personnel involved
- 10.2.5 Make prognosis
- 10.2.6 Length - 5 to 7 minutes

10.3 Student comments
- 10.3.1 Student #3 - patient's wife refuses further visits.
  Preceptor: "Aware of situation, respect wishes, unavoidable"
- 10.3.2 Many students stressed they are more at ease with patients than at beginning of semester.
  Preceptor: "Has seen great increase in overt confidence"
- 10.3.3 Concern was expressed regarding taking more from patients than able to give.
  Preceptor: Students are benefitting patients by giving them attention
- 10.3.4 Some minor frustration expressed over feeling unprepared to interview and examine

Eleventh Seminar - Student Clinical Presentations

Note : Presentations of students 1, 2, and 3 not recorded due to observer absence. Refer to eighth meeting (home visits) for description of patients.

Twelfth Seminar - Student Clinical Presentations

12.1 Student #7 - The patient, J.F., is a one-year-old male born nine weeks premature. His present condition is diagnosed as developmentally retarded. This situation is probably due to frequent apnea during the five weeks in which he was hospitalized post-partum. J.F.'s mother estimates that he must have stopped brathing at least fifty times in the hospital and at home. On at least two of these occasions, the oxygen deprivation was severe. The symptoms of retardation were first apparent when J.F.'s head growth accelerated rapidly. He has since been diagnosed as having a motor skills deficit and performed poorly on a Denver developmental test. It is the opinion of the pediatric neurologist called in on consult that there is brain damage. J.F. is now in a course of rehab training at the Monroe Developmental Center. J.F. contracted viral pneumonia two months ago but is well now. His mother had a miscarriage one month before she became pregnant with J.F. The student commented on the management of this patient. He felt it was generally good, that J.F. and his mother received a lot of emotional support from the GVGHA PNP. The student visited the patient at home, four times at the Wilson Center, and once at Strong Memorial, sitting in with the pediatric neurologist.

12.2 Student #9 - The patient is a six and one half year old boy, D.F. His condition, idiopathic nephritis, was diagnosed by the preceptor approximately one year ago. It is now reasonably well controlled by diet and drug therapy, but the patient now has a lowered resistance to disease. When he is ill, the protenuria recurs. At this point in time the illness has recurred, but the overall prognosis is reasonably good for children. The preceptor noted that there was some correlation between parents with allergies and children with nephrotic syndrome. Both patient and mother are compliant and conscientious. The mother's medical history is interesting. She has had many medical problems, Ob/Gyn problems, headaches, and emotional problems. The student observed that there is very little communication between the mother and father. The mother seems inclined to hysterical revealing of her problems, as exemplified by the speed and detail with which she presented them to the student on her first interview. In addition, her memory of sequences of events is poor. The student commented that the management of this case was good, and the prognosis reasonably good, i.e., 70% of children with this condition do recover. The preceptor reviewed the diagnostic criteria with the student and discussed what drugs were used in therapy, dosage and side effects. The preceptor complimented the student on observing that, "as usual, the illness involves more than organs - control of the social environment is a greater challenge than the kidneys."

12.3 Student #4 - The patient, Mrs. E.W., is a 71 year old woman with recurrent metastases. Mrs. E.W. had a radical right mastectomy in 1968. A recurrence of metastases in 1970 was treated with cobalt therapy. Her long history of arthritis in the spine makes it difficult to diagnose metastases. In October, 1973, she came to the preceptor. It was the first time she had had a regular internist. In November, 1973, metastases were found, and she was treated with radiotherapy. In February of 1974, she had acriohypophysectomy. This may or may not have helped, but has relieved her pain. The edema in her right arm has worsened, so she is now taking diuretics. These are not helping as much as they should, so there may be a tumor involved there. Mrs. E.W. is on several drugs including demarol, which she resists taking. She maintains detailed records of all aspects of her problems, probably due to her training as a nurse. The student made only one visit with the patient, does not know the prognosis or other sources of support for her care. He did not comment on the management of the patient.

12.4 Student #5 - The patient is a 49 year old, white, male, Mr. F.U., diagnosed with mild atherosclerosis, high cholesterol and triglyceride levels following an attack of angina pectoris while walking to work. Mr. F.U.'s first visit to the preceptor was his first physician visit in ten years. He was treated with vasodilators. The student noted that the patient was somewhat confused over his medication regiment, thinking that he need only take his medication when pain occurred, when really the preceptor had prescribed it on a regular basis.

Thirteenth Seminar - Student Clinical Presentations (5/19/75)

13.1 Student #11 - The patient is a fourteen year old female, W.D., who developed neurologic problems subsequent to several strep infections. The patient presented complaining of emotional lability, slurred speech, and nervousness. She exhibited signs of fidgeting, decline in fine motor capabilities, depression; physical examination revealed a slight heart murmur. The preceptor provisionally diagnosed post streptococcal chorea. She was admitted to Strong for a cardiac consult regarding the possibility of rheumatic fever. She was finally diagnosed as having Sydenham's Chorea, popularly known as St. Vitus' Dance. The student made two home visits with the preceptor. W.D.'s symptoms have vacillated for several months; therefore,one of the biggest problems in her management was the question of her going back to school. The preceptor and the parents decided that it was best that she be tutored at home. This was arranged with the school district. There is a possibility that W.D. may have mild heart damage, but her progress has been such that the preceptor expects she will be free of symptoms by summer and should return to school next year.

13.2 Student #10 - The patient is A.S., a four-year old male diagnosed with mild mental retardation of unknown etiology. His mental age is approximately two and one half years. His younger brother is also retarded and died at age twelve months of an unrelated cause. The retardation was diagnosed early. The child now attends a home care training program at the Rehabilitation Center, as well as a day care center near his home. The child currently has communication problems in that he can understand what people are saying to him, but is unable to return the communication. The student visited the Rehab Center with the patient. He detailed the large number of specialists involved in the care of a case like this, including a physical therapist, audiologist, specialist in activities of daily living, and more. A.S.'s parents are highly educated. They take good care of him. However they want to terminate therapy and keep him in the nursery school where he is now. Although he is doing well, the health care professionals are uncertain as to whether or not he can handle the environment as a sole source of therapy. The prognosis is uncertain, since his condition's etiology is unknown. Another student challenged the validity of the psychological evaluation. The presenting student defended it, explaining the subjective aspects of this evaluation were as important as the more objective tests.

13.3 Student #12 - The patient is T.V., a 20 month old male who has spina bifida. His condition has resulted in incontinence, paralysis below the waist, and hydrocephalus. In addition, his social situation is quite unstable. T.V.'s parents were unwed at the time of his birth, the father unemployed and apparently a petty criminal. T.V.'s delivery was difficult, probably due to a lack of prenatal care. He is slightly mentally retarded, but can feed himself. The student described spina bifida, its process, research, statistics of occurrence, complications, and treatment. He then described the social history in more detail. He described the large number of health care personnel involved, a very complex management problem.

STUDENT INTERVIEWS WITH GVGHA DEPARTMENT CHIEFS

1.0 Business Office

1.1 Objective: Systematic Recovery of Patient Expenditures

1.2 Patient management form
  1.2.1 Based on Kaiser Permanente
  1.2.2 A complete record for each patient visit
  1.2.3 Form information including billing type, services used, fee deviations

1.3 Insurer claim processing

1.4 Referral mechanism
  1.4.1 Referrals costly
  1.4.2 Director, Business Manager approval required for reimbursement

1.5 Out-of-town claims paid

1.6 Member screening
  1.6.1 Reserve right to refuse membership
  1.6.2 As yet no attempt to screen

1.7 Other activities
  1.7.1 Reception and patient routing center
  1.7.2 Membership information

1.8 Problems
  1.8.1 The business office is point of contact between the group and the insurer. Therefore, it is often the site of inter-organizational conflicts
  1.8.2 Development of computerized billing
  1.8.3 Fee for service billing - diversity of third party sources, partial repayment schedules

2.0 Pharmacy

2.1 Patient education
    2.1.1 Individual drug use profile
    2.1.2 Counseling on dosage and side effects

2.2 Drug pricing
    2.2.1 Necessity of being competitive
    2.2.2 Cost plus sliding fee mechanism
    2.2.3 Substitution of generic drugs eliminates duplication, allows large lot, wholesale buying (physician waiver required by law)

2.3 Formulary - listing of drugs the medical group considers necessary for practice - eliminates unnecessary inventory

2.4 Underutilization of pharmacists

2.5 Clinical pharmacy
    2.5.1 Consultation with group physicians on pharmacological problems
    2.5.2 Emphasis on clinical work beyond the pharmacy
    2.5.3 Training: more biochemistry, physiology and pharmacology than traditional "druggist" program
    2.5.4 Pharm.D. (Doctor of Pharmacy) New degree, new role, not yet widely accepted in medical centers.

3.0 Internal Medicine Section

3.1 Patient J.R., 79 year old, female, routine check
    3.1.1 Chronic diabetes and hypertension
    3.1.2 Blood pressure elevated - failure to take medicine
    3.1.3 Preceptor suggested arrangements to help patient get medicine

3.2 Patient A.S., 50 year old, female, first visit
    3.2.1 Recurrance of hiatal hernia - irritated by nervousness, roughage
    3.2.2 Personal and family history
    3.2.3 Drug history - patient asked for refill of old prescription - preceptor checked PDR, refilled but advised limited use.
    3.2.4 Preceptor advised scheduling for complete physical - diagnostic tests, consultation with nutritionist and exercise

4.0 Optometrist

- 4.1 Patient E.M., 65 year old female complaining of blurred vision
  - 4.1.1 Complete visual exam: ophthalmoscope, acuity, astigmatism
  - 4.1.2 Assessment of family history, physical condition, past health
  - 4.1.3 Tinnometer - glaucoma test. Showed possible pressure elevation. Patient asked to return in one week for second test.
  - 4.1.4 Optometrist altered bifocal prescription

- 4.2 Patient C.W., 68 year old male complaining of excessive tearing
  - 4.2.1 Complete visual examination and assessment
  - 4.2.2 No abnormality found - slight change in prescription and replacement of badly scratched lens.

- 4.3 Patient H.N., 17 year old male - urgent visit for apparent allergic reaction
  - 4.3.1 Examination with slit lamp revealed no abnormality other than obvious irritation
  - 4.3.2 Reaction had occurred previously - optometrist agreed with patient diagnosis, prescribed ointment for symptomatic relief

5.0 Communications Center

- 5.1 Patient appointment system
- 5.2 Types of patient calls
- 5.3 Defining patient needs
- 5.4 Urgent visit triage by nurse

6.0 X-Ray

- 6.1 X-Ray record system - access and periodic retesting
- 6.2 Equipment - purposes, techniques, safety
- 6.3 Automatic processing of films
- 6.4 Interview with radiologist (diagnosis of colon polyp)

7.0 Other Rotations

- 7.1 Rotations in pediatrics, Ob/Gyn, Urgent Visit Clinic, Laboratory Services and Medical Records were not observed. However, all rotations were attended by all students.

RECOMMENDED READINGS

1.0 Organization of Group Practice
  1.1 "Development of a Prepaid Group Practice Plan (HMO) in a 24 month Period in a Metropolitan Community," Dr. Harold Gardner
  1.2 "Health Maintenance: It Works," Shiela K. Johnson. (New York Times Magazine).
  1.3 "General Medical Care, Identification and Analysis of Alternative Approaches" by Walsh McDermott, M.D.
  1.4 "A Medical Society-Sponsored Comprehensive Medical Care Plan," by Richard Sasidy and Carl E. Hopkins, Medical Care, Vol V, No 4, July-August, 1967.
  1.5 "PSRO and HMO - Some Dimensions of Quality," by Ernest Saward, GHAA, October, 1974.
  1.6 "Prepaid Group Practice and the Delivery of Ambulatory Care," New England Journal, August, 1974.
  1.7 "This is Prepaid Group Practice Medical Care," by J.A. Prussin, Medical Group Management Association, 1972.
  1.8 "The Role of Prepaid Group Practice in Relieving the Medical Care Crisis," Harvard Law Review, Vol 84, No 4, 1971.
  1.9 "The Organization of Medical Care," Ernest Saward, Scientific American, New York, September, 1973.
  1.10 "Recruitment of Physicians and Organization of the Medical Group."
  1.11 "Prepaid Group Practice: Its Components and Their Interrelationships," by Jeffrey A. Prussin.

2.0 Financing of Group Practice
  2.1 "Some Information Descriptive of a Successfully Operating HMO," by Ernest Saward, Janet Blank, and Henry Lamb; Department of HEW, HMO Service.
  2.2 "Health Maintenance Organization, Financing Problems," by Avram Yedida, speech presented at AAMC Southeastern Regional Workshop on HMO's, University of North Carolina, Chapel Hill, Feb. 15, 1972.
  2.3 "Health Maintenance Organizations: Some Organizational and Financial Models," by Jeffery A. Prussin.

3.0 Facilities Development
  3.1 "Planning and Implementation of the Community Health Foundation of Cleveland, Ohio," by Avram Yedida, U.S. Dept. of HEW, 1969.
  3.2 "A Viable Health Center for an HMO," by James L. DeLong, March 20, 1972.
  3.3 "Factors to be Considered in HMO Site Selection" by Jeffery A. Prussin, September, 1973.

4.0 Comprehensive Health Services

- 4.1 "Physician Assistants at Kaiser: Distinctive Patterns of Practice"by Paul Lairson, Jane Cassels Record and Julia James. Paper given at APHA annual meeting, Atlantic City, New Jersey, 11/14/72.
- 4.2 "Nurse Practitioners in Primary Care," by Walter O. Spitzer and Dorothy Kergin. CMA Journal, Vol 108, 4/21/73.

5.0 Consumerism in Group Practice

- 5.1 "Consumerism and Health Care," by Samuel Wolfe, Public Administration Review, September, 1971.
- 5.2 Consumer Incentives for Health Care, edited by Selma Mushkin, Prodest Publisher, New York, 1974.

Resource Paper No. 4

University of Pennsylvania

CURRICULUM MODULES: RATIONALE, OBJECTIVES, METHODS AND PREREQUISITES

Module A. Primary and Comprehensive Care

Module B. The Health Care Team

Module C. Consumer Participation

Module D. Quality of Care

Module E. Economics of HMOs

Module F. Change and Innovation

A. Module 1: Primary Care/Comprehensive Care

Rationale

With the rapid movement in the 1950's and 1960's away from general practice to specialty practice, there has developed a corollary concern for the manner in which a patient makes his initial contact with a provider of care. Primary care encompasses the professional and related services administered by physicians (internist, family practitioner, obstetrician-gynecologist, or pediatrician), nurse practitioners, dentists, social workers, and other health professionals in an ambulatory setting, with referral to specialists as necessary. Comprehensive care invokes the concept of a broad spectrum of health services, including physicians' services and hospitalization which may be required not only to maintain health but to diagnose and treat physical and psychosocial illness. For the student contemplating the choice of a specific career within medicine, the importance of this section lies in his opportunity to explore alternative modes of serving patients with a concern for the implications these choices carry for both the providers of health care and for the patient.

Objectives

... The student should be able to list all the features of primary health care in an HMO setting.

Given an open-ended question on health care delivery in America, the student should be able to state the following factors underlying the development of HMO's:

If asked about the distribution of health care, the student should be able to indicate the range of patient/MD distribution.

Overspecialization a factor

If the student is asked to describe the role of the profit motive in shaping traditional private practice, he should be able to do so.

The student should be able to answer questions on the U.S. commitment to health care delivery using comparative material from other national systems.

The student should be able to define primary care, including the following elements:

A feature of primary care is that it is the first point of entry into the health care system, i.e., first contact medicine.

The primary health care provider assumes responsibility for integrating patient's health care.

Integrates into patient's health record opinions and plans of specialists to whom patient is referred

POMR as system to facilitate systematic care for varied problems

Communicates the information to the patient

Applies all information to the patient

The primary care provider is responsible for the continuity of the patient's comprehensive health care over time.

If asked to describe the features of a comprehensive primary care program, the student should be able to list the following aspects of the system:

Comprehensiveness

Total care in health and disease

Health maintenance seen as an important function

Methods used:

Prevention and early detection of disease

Periodic health evaluations

Lab tests, early screening, appropriate interventions

Health education

To involve patient as an active responsible participant in his health care program

To inform patient of behaviors that will maximize his health status

Continuity

Assume responsibility for patient's care throughout sub-systems of comprehensive program

Assume responsibility for patient's health care needs over time

Specialist referrals when indicated

On call coverage 24 hours a day, 7 days a week

Provisions for treatment in an emergency setting wherever and whenever necessary

Accessibility

Physically well located for population served by system

Financially accessible to all segments of population through various payment programs

Providers who are sensitive to the varying social needs of the patients, i.e., social accessibility

Accountability

To the consumer

To the profession

Peer review, professional review

To government agencies where there is support for programs, accountable for quantity, quality of care

The student should be able to list the types of practitioners who deliver primary health care

Family practitioner

Internist

Pediatrician

Obstetrician-gynecologist

Nurse practitioner

Mental health worker, e.g., social worker or psychiatrist

... As a result of his activities at an HMO, the physician in training should orient his career plans towards opportunities to do comprehensive care.

The student should develop a positive attitude toward the provision of comprehensive care to patients

The student should value those professors who teach comprehensive care more highly as a result of HMO experience

The student should regard first contact medicine, and the opportunity to provide continuing care, as a stimulating way to practice

Opportunity for genuine positive intervention in life of patient

Prerequisites

The student should have been exposed to the introductory material in ID 103 before entering the sequence in the clinic. If not, listening to the Hertz cassette is the minimum requirement.

Important here will be references from the literature on comprehensive screening and on the concept of health maintenance as contrasted with crisis medicine.

Learning Experiences

The section concerned with the factors underlying the development of HMO's will involve mainly didactic material. Methods for delivery of curriculum will include assigned bibliographic material followed by discussion of approximately one hour. The staff resource person is Dr. Klaus. Other resources available include reading material and specific sections from the taped lectures by Dr. Hertz.

Key topics to be covered in these activities must include:

1. Patient-MD distribution
2. Overspecialization
3. Profit motive
4. Comparison of our system with other national systems

Dr. Kobb has major responsibility for the students' understanding of the process by which the patient finds his entry into the system. The activity here will be observation. A student can work with a provider and note different ways of entry into the system, such as the episodic visit and initial comprehensive examination. Here the clerk should be assigned to a provider for one day. Near the end of the day there will be some discussion of concepts to be elicited from the observation.

Special attention will be directed to the POMR as a means to facilitate general patient care. Resources include the booklet on POMR, the Hertz cassette, and discussion with the provider to observe how Penn-Urb records are kept and how the POMR lends itself to a team approach. One activity will be to compare standard clinic records taken over from Graduate Hospital with POMR at Penn-Urb.

Aspects of comprehensive care will be treated first through observation, followed by student participation in three complete comprehensive examinations. The student will start with the initial screening, move to the physical examination, and then observe discussion by the team of the formation of a treatment plan. Scheduling should be so arranged that different types of patients will be seen; for example, an older patient with multiple problems, a younger patient in a situation requiring patient education, a pediatric case, etc. Checklists of points they are to observe will be developed and students will be scheduled in a manner to allow them to follow a provider until the checklist is filled out.

Teaching the section on continuity of care will involve relatively little didactic material. Here we will use the device of having the student on call for 24 hour periods to answer incoming messages and work in consort with a provider to develop appropriate responses. It is hoped this will serve to fulfill the goals of general familiarity with the system and specific differentiation of the kinds of calls received and the outcomes with the focus on continuity. One technique here might be a requirement to make and use a log. Some time will also be spent in the Graduate Hospital emergency room. The purpose here is to illustrate the objective in developing continuity of care of using the emergency room as infrequently as possible, only as a necessary backup. The student will, in this context, make rounds with a provider carrying a sufficient case load in the hospital. The unit on continuity of care will require a review of the system of specialist referrals. Such referrals are made a number of times during the week, offering opportunities for student observation.

An exercise in the review of demographic data will serve as an introduction to the issue of accessibility of care. Here the student will be actively involved in developing information on where the patients live, what their socioeconomic levels are, age factors, and other variables that relate to and affect the access to varying levels of health care. In the affective area, the student should also be submitted to situations that will sensitize him to the varying social needs of the patient.

As an introduction to accountability, the student will attend a consumer council meeting. He will then be required to audit several charts to develop a clear understanding of how these precedures are developed. A check list will be developed as a mechanism to alert students as to what they are looking for in the audits. Finally, broader questions, such as accountability to government agencies, will be covered in a didactic manner.

B. Module 2: The Health Care Team: Roles and Responsibilities of Different Health Care Practitioners in a Primary Health Care Team

Rationale

With the advent of specialization, medicine has witnessed a phenomenon not unlike many enterprises that emerged throughout the industrial revolution. As operations in these complex enterprises have endeavored to respond to various needs of a mass urban society, differentiation of functions and roles has taken place. This has been true of medicine as well. The manner in which these different functions are integrated remains an important issue, since it has too often been left to the patient. The development of the health care team is one response to this issue, but its successful operation depends on the development of proper understanding of the importance of each of the various contributing roles to the health of the consumer. Here the student can explore, through direct observation, some of the problems and prospects of a team setting.

Objectives in the Cognitive Domain

... The student should be able to discriminate among the roles and responsibilities of health care practitioners and should be able to utilize the competencies of each practitioner appropriately.

- The student should be able to define the Nurse Practitioner (NP)
  - Delineation of the expanded role of the nurse
    - Areas of competence
    - Independent and dependent functions
    - Accountability
    - Division of responsibility with other practitioners
  - How the Nurse Practitioner interacts with other health professionals
    - Physician-Nurse Practitioner interactions
    - Nurse Practitioner as a member of a larger team, e.g., Nurse Practitioner-Physician-Social Worker, Licensed Practical Nurse
  - How the Nurse Practitioner interacts with patient
    - Health education as an important part of the Nurse Practitioner's role
    - Long term management of chronic illness
    - Diagnosis and treatment of uncomplicated acute disease in accordance with protocols
    - Family oriented health care based on a knowledge of family dynamics, health behavior
    - Supportive role counseling, nurturing and caring are important skills in repertoire of the Nurse Practitioner

The student should be able to describe how the role of the Nurse Practitioner varies according to the work setting

Nurse practice varies according to health care setting

Family nurse clinician, clinical nurse specialist

The student should be able to define the Social Worker

Person who works for positive change within individuals and groups

Mobilizes outside resources

Helps person discover own resources

The student should be able to utilize the Social Worker appropriately in a health care setting with the knowledge that the Social Worker has the following competencies and orientation

Psychological treatment of sick people

Emphasis on strengths individual possesses, rather than on weakness or illness

Functions to help patient find coping strategies for current physical and psychological problems

Facilitator of increased awareness of ecology of patient, i.e., the patient as a whole person in terms of his psychological and socio-economic context

Stress on importance of psychological factors which will help or hinder patient's health maintenance

Commitment to multi-professional, multi-specialty team approach to health care services

Facilitator of staff competence at meeting psycho-social needs of the patient

Competence with individual and family oriented counseling

The student should be able to explain the features of the role of the physician in an HMO setting

He should be able to define various models

Multidisciplinary group practice model

Family practitioner model

The student should be able to demonstrate that he understands how an organized system of health delivery impacts upon medical practice of the physician

He should be able to explain the ways in which tasks are divided according to the principle that each member of the team provides to the patient the type of health care he is best prepared to deliver

When the student is confronted with a patient, he should choose to work cooperatively and collegially

The student should choose to work with other specialists around family health care

He should make use of the easy access to colleagues for discussion of treatment strategies and the development of health care policies

Behavioral examples

Management of chronic disease, e.g., diabetes, the Nurse Practitioner educates patient and manages treatment

Social service component brings specific professional expertise which broadens understanding of patient

The student should be able to list the methods through which the quality of health care can be monitored in an HMO

Peer review

Internal audit

External professional review

- The student should be able to list the following features of working as a physician in an organized system
  - Full time, salaried professional
    - Management aspects of practice are responsibility jointly of administrators who are part of the provider organization
  - New emphasis on health maintenance and prevention as well as cure
  - Different economic pressures in an HMO as compared with a fee-for-service practice
  - Commitment to societal goals without major personal sacrifice
  - Opportunities for teaching and interaction with students in university related HMO's
- The student should demonstrate that he can discuss the following problems of medical practice in an HMO
  - High level of ambiguity due to still evolving organization
  - Organizational constraints
- The student should be able to explain and to demonstrate appropriate use of the competencies of different level practitioners
  - In relation to the following aspects of health care
    - Patient education
    - History taking and physical examination
    - Diagnosis
    - Treatment and management
    - Prevention
  - In relation to diverse characteristics of the patient population
    - Age: pediatrics, internal medicine, geriatrics

Sex: Ob-gyn

Socio-economic status

Presenting problem

Psychosocial and physical manifestations

Medical emergency (urgency)--referral mechanism

The student should be able to answer questions on the role of the home care program as an example of team practice of comprehensive health care

Description of the home care program

Emerging interest in continuity of patient care after hospitalization

Economic implications of the home care program

Team approach to the delivery of health care services in the home

Team composition determined by the needs of the patient

Unique setting for the delivery of health care services

Health care providers adapting to the ecology of the family, e.g., the patient in the home setting

Patient compliance and family support toward implementing therapeutic goals crucial to the success of the program

Home care NP assumes role of educator to patient and his family about treatment plan and goals

Major stress on having patient assume active role in treatment plan

Home care NP devises discharge plan, and often coordinates overall treatment plan

Student should be able to list the differences between an integrated health care team and group practice (space sharing) in terms of:

Continuity for the patient

Knowledge of and contact with other appropriate providers

Methods available for delivering family oriented health care

Standardized record keeping to facilitate interprofessional communication

Interdependent professional relationships: the collegial approach

The student should understand the rationale behind the structure and composition of the team

Advantages

Disadvantages

Objectives in the Affective Domain

... As a successful outcome of the affective learning, the physician in training should choose to work in a team whenever possible.

The student should demonstrate his preference for an understanding of team delivery of health care in the following ways:

The student should describe team work as an efficient means to deliver health care

He should not avoid operating as a team because he finds it is time consuming or cumbersome

The student should demonstrate how he would handle the following problems as a member of a team; when working in the HMO setting, he should be able to articulate the reasons for his choice of colleagues in each situation

Diagnosis

Well-baby care and consultation with parents

Abortion

Diabetes

Potential suicide

... The physician in training should demonstrate attitudes towards other level practitioners that enhance effective team functioning

The student should choose to make use of the independent contribution that Nurse Practitioner, Social Worker and Physician's Assistant are capable of making to health care of patient

Must appreciate and articulate that other practitioners are not just extensions of self, but that they bring new insights from other disciplines to bear on patient's problems

Examples

Social Worker able to diagnose and intervene successfully with mental health components that physician might not notice

Nurse Practitioner's competence with nurturing and management of chronically ill patients

The physician in training should demonstrate trust that other level practitioners perform their functions competently in the following ways:

The student should be able to use information from history and physical done by Physician's Assistant or Nurse Practitioner as basis for diagnosis and treatment, rather than redoing procedures

The student should believe that information and support on childrearing given by Pediatric Nurse Practitioner has been adequate and accurate

Prerequisites

The student will familiarize him/her self with the expanded nursing role through the following articles:

1. Bates, Barbara. "Doctor and nurse: changing roles and relationships." New Eng. J. of Med., 283:129-139 (July, 1970).
2. Lewis, C. E. and Resnick, B. A. "Nurse clinics and progressive ambulatory patient care." New Eng. J. of Med., 277:1236 (Dec. 7, 1967).
3. Lambertsen, Elinor C. "Not quite MD, more than PA." J. of Amer. Hosp. Assoc.: Hospital.

In addition, references will be made available on principles of practice and on the primary care practitioner. The student will be expected to be familiar with the contents of "A Medical Student's Guide to Health Maintenance Organizations" produced by Simon, et al. at Georgetown University School of Medicine. The Bernheim and Hertz reference is relevant here.

Learning Experiences

As part of developing his awareness of the differences among space sharing, solo practice, and the Penn-Urb setting, the student will be asked to attend specifically to differences between space sharing as he observed it at the Hospital of the University of Pennsylvania and the collaborative practice he was introduced to at Penn-Urb. The Penn-Urb Medical Director will discuss these issues in a tutorial conference. Other activities designed to demonstrate collaborative practice to the student will include participation in the comprehensive examination, work with the POMR, and participation in the workup of a mini contract following discussion of the data base and problem identification of a plan patient. Participation in the record review will be both for completeness and for management. This will be done both in pediatrics and adult medicine.

The student will be required to attend a multi-disciplinary planning session about problems of the family. This is included to illustrate how the social worker is invoked in a collaborative practice. In similar fashion, the student should spend one session per week with a certified nurse midwife teamed with an obstetrician. These experiences will be reinforced through a weekly discussion of collaborative practice based upon the collaborative aspects of health care observed by the student during his sessions with providers.

Opportunities will be made available to allow the student to expand and clarify his definition of the nurse practitioner in terms of expanded role practice, dependent and independent functions, accountability, and interaction with other health providers.

Experiences will be structured to provide opportunity for students to observe nurse/social worker, nurse/physician interactions within the context of the normal practice caseload. It is anticipated that the student will observe the pediatric nurse practitioner for two sessions, an adult nurse practitioner for two sessions, and a certified nurse midwife for two sessions. The student will select a nurse/patient interaction from each session: he will disucss the interaction with the nurse practitioner, being prepared to articulate whether or not the nurse practitioner made a unique contribution to the health care of the patient. The student and nurse practitioner will allot the final half hour of each session for this discussion. The student will observe a pediatric comprehensive visit involving both a physician and a pediatric nurse practitioner. The student will observe the nurse practitioner interaction with the patient and with other providers. Discussion will focus on the content of the visit, assignment of tasks, family involvement in health care plans.

A number of other observations and experiences will be designed to enhance the student's understanding of the psychosocial discipline as an integral component of primary/

comprehensive health care and his ability to make appropriate use of its services through collaboration, consultation, and referral. Teaching will be carried out with case conferences, seminars, individual supervision and informal discussions. Consultation with the individual student for the purpose of diagnostic evaluation, leading to recommendations for treatment, with emphasis in selection of that psychosocial therapy most suited for that particular individual. The student will be assigned to a team through which he will gain first-hand experiential learning in relation to cases being serviced by his team.

The Dental Component

As a part of developing the students' concept of a health care team, the existence of a dental component in an HMO offers a special learning opportunity. The following module was developed as a separate but related set of learning activities.

Rationale

This section of the curriculum derives, as do the others presented here, from the consensus that the area of greatest deficiency in our health system is the organization of primary care. Since this aspect of the health system emphasizes the management of common and chronic problems, it should serve as a link between the patient and certain specialized and technologically complex components of health care. Oral health and disease is unmistakenly within the purview of primary health care and primary care providers must develop some competence in this area if we are to experience any major imporvement in the oral health of the nation in the years ahead.

Objectives

... The student should be capable of performing an oral examination.

The student should be capable of recognizing all tissue and landmarks in their health unaltered state

The student should be capable of recognizing the difference between what is normal, healthy tissue and that which presents in altered states of health

The student should be capable of diagnosing the presence of the most common oral diseases

The student should be capable of recognizing the signs and symptoms of dental caries in its various stages

The student should be capable of recognizing the signs and symptoms of periodontal disease in its various stages

The student should be capable of recognizing the signs and symptoms of malocclusion

... The student should have understanding of the basics of treatment for the different disease processes.

The student should be familiar with those systemic problems or diseases that directly affect dental treatment

The student should be well versed in the precautionary steps involved in treatment of the medically compromised patients

The student should be capable of coordinating oral health care with other health needs of the patient

... The student should have complete understanding of the implication of advanced dental disease and why early recognition is vital.

The student should be competent to carry out dental prevention programs and assess patients' progress in oral hygiene

... The student should be competent to communicate effectively with dentists about the joint management of patients.

The student should be competent to refer patients appropriately for dental care

The student should be competent to evaluate treatment post operatively and assume responsibility for follow up health maintenance

The student should be well versed in basic dental terminology

Prerequisites

The student should study the following five references prior to attending the seminar.

1. Gerrie, Norman F. and Ferraro, Richard H. Organizing a program for dental care in a neighborhood health center. Public Health Reports, 83 (8), August 1968, p. 633.
2. Schonfeld, Hyman K. Origin and growth of dental group practice and closed panels. New York State Dental Journal, 36 (2), February 1970, p. 77.
3. Dental expenditures, utilization, and prepayment. Blue Cross Reports, 1 (2), September-October, 1963.
4. Nikias, Mata K. Prepaid dental care: Patterns of use and source of premium payment. American Journal of Public Health, 59 (7), July 1969, p. 1088.
5. Nikias, Mata K. Social class and the use of dental care under prepayment. Medical Care, VI (5), September-October 1968, p. 381.

Learning Experiences

The objectives will be met by the following approaches:

A. Seminar. This will involve a slide lecture presentation and follow up discussion.

B. References. These will give students necessary background information to better understand the seminar and for future use.

C. Clinical. Time will be spent in the examination and treatment of patients to allow students the opportunity to reinforce material presented in the seminar.

D. One two hour seminar will incorporate a clinical session for introductory material. After that it will be optional if the student desires to pursue the subject in greater depth.

C. Module 3: Active Consumer Participation in an Organized Health Care Setting

Rationale

Recent years have witnessed a marked emphasis on consumerism--the expectation and rights of the consumer to full information about the services being purveyed. In contrast to other services, health care, if it is to be comprehensive, actually depends upon active consumer involvement in order to effect favorable outcomes. The consumer or patient must be an active member of the health care team if preventive health care is to be practiced--he cannot remain passive. The consumer's compliance is imperative and compliance is related directly to intelligent involvement. Furthermore, if the health care system is to be responsive to the needs of the consumer, then the consumer must be motivated, educated, and sophisticated enough to make an intelligent assessment and statement of his needs.

Objectives in the Cognitive Domain

... Given a question about the rights of patient in an HMO setting, the student should be able to include the following points:

- Patient's right to full information about his own health status
- Privacy/confidentiality
- Information about the nature and consequences of proceedures and interventions
- Complaints and concerns of patient taken seriously by members of organization

... The student should be able to demonstrate his understanding of the importance of active patient participation in the health care process both by being able to describe its implications and by his behavior.

- Student should be able to list the following features of patient education:
  - Patient should be educated about importance of health maintenance, early detection and prevention of illness
    - Patient should have a clear understanding, through education by the health care team, of how his behavior impacts upon his own health status
    - Increased patient compliance with treatment plan is hoped to be an outcome of the health care team's commitment to health education and patient participation
- Student should be able to describe the ways in which consumerism impacts an organized system of health care
  - Divides knowledge and responsibility between provider and patient
  - Establishes importance of direct channels of communication around patient's concerns or complaints

Shapes type and timing of services rendered

Student should do patient education in all possible encounters with patient

Student should demonstrate that he regards education as a high priority when choices must be made about how to utilize limited time with patients

Objectives in the Affective Domain

... Student should understand that active patient participation in health care process is important.

The student should realize that the patient has the power to influence his own health process

The student should be able to describe strategies by which he would attempt to involve patient in own health care

The student should learn to value patient's contribution in describing problem and potential solutions

... The physician in training should regard full information to patient about health status and consequences of intervention as ethical obligation.

... The physician in training should regard patient education as an essential component of health care

Student should feel encouraged about possible positive outcomes from time spent on patient education

Student should learn to regard lack of compliance by patient as possible failure to be convincing about validity of intervention

... Student should want to work in a setting where patient satisfaction is taken seriously as a measure of quality of care.

Student should be sensitive to patient as whole person rather than body to be worked on

Student should appreciate opportunity for extended contract with patients as human beings

Prerequisites

Before attending the various experiences outlined in this section, a student should study the following references. The student also should have mastered the content of the Patients Bill of Rights issued by the American Hospital Association.

1. Redman, Barbara K. Patient education as a function of nursing practice. Nursing Clinics of North America, 6 (4), December 1971, p. 573.
2. de Tornyay, Rheba. Toward consumer-oriented health care.
3. Tosteson, D. C. The right to know: Public education for health. Paper delivered at the plenary session of the AAMC Annual Meeting, Chicago, Illinois, November 13, 1974.
4. Lewis, Edith P. The health care consumer: Compliant captive?
5. Gillum, Richard F. and Barsky, Arthur J. Diagnosis and management of patient noncompliance. Journal of the American Medical Association, 228 (12), June 17, 1974.
6. Pomerleau, Ovide, Bass, Frederick, and Crown, Victor. Role of behavior modification in preventive medicine. New England Journal of Medicine, 292:1277-1282, June 12, 1975.
7. Becker, Marshall H. and Maiman, Lois A. Sociobehavioral determinants of compliance with health and medical care recommendations.
8. Monaco, Rose Mary, Salfen, Linda, and Spratt, John S. The patient as an education participant in health care.
9. Simonds, Scott K. Current issues in patient education. New York: Core Communications in Health, Inc.

10. Moffat, Samuel. Patient education: A new weapon against malpractice suits. *Medical Alert Communications*, 2 (6), June, 1975.

11. Lesparre, Michael. The patient as health student. *Hospitals*, Journal of the American Hospital Association, 44, March 16, 1970

Learning Experiences

Seven distinct experiences have been outlined for the student to achieve the objectives of this module. These are both observational and behavioral in terms of what they require of the student and as such should contribute to an active learning process.

The seven experiences are outlined here in the sequence that would optimally introduce the student to the curriculum content of this section.

1. Participation in introduction of patients to the Penn-Urb system by the Patient Service Representative.
2. Observation of first part of the comprehensive physical examination by Mary Dougherty who will describe how she works with patients; why it is important to tell patient exactly what is happening with each test and why; what difficulties are encountered in obtaining test results; how she relates to other providers, etc.
3. Observation of patient-provider encounter re patient education.

4. Attendance at a behavior modification session conducted by Dr. Ovide Pomerleau with Betsy Roeback conducting a 20 minute didactic session beforehand.
5. Attendance at a health education session where group members share a common disease. Lew Wells will conduct a didactic session beforehand on group interaction.
6. Attendance at Penn-Urb Subscriber Council Meeting.
7. Review Penn-Urb Public Relations files and newsletters from PHP. Harvard Community Health Plan, and Columbia Health Plan, and draft news article for submission from Penn-Urb to PHP newsletter.

The staff work group responsible for the design of this module elected to delineate the specific activities of each of the above experiences through a series of study questions. These questions as given here represent a detailed guide to focus the attention of both student and staff.

Experience 1 study questions

1. In what way are consumers presently introduced to a health care system? How should they be introduced?
2. What points should an introduction to a health care system include?
3. How does a consumer choose a health care provider? What information should he/she have?
4. In what ways does this experience encourage active consumer participation in the health care process?

Experience 2 study questions

1. What are the consumer's thoughts about or reactions to health screening and testing? Does he/she consider the process valuable, necessary, appropriate?

2. In what way does the Health Care Assistant explain the experience and prepare the consumer?

3. What is the significance of this experience in regard to the consumer's introduction into the system?

4. What is the role of ancillary personnel such as the Health Care Assistant in health care services; articulating for the consumer, provider, and the system; and promoting good relations?

Experience 3 study questions

1. What aspect of the interaction best illustrated the process of health teaching on the part of the provider?

2. What teaching techniques did the provider employ, e.g., verbal description, analogy, physical demonstration, use of printed materials and aids?

3. How did the provider assess the patient's learning needs?

4. How did the provider assess the patient's willingness, ability, and readiness to learn?

5. How did the provider convey expectations and assignment of responsibility to the patient in regard to learning?

6. How did the provider assess that learning on the part of the patient had or had not occurred?

   Interviewing techniques employed?

   Other techniques employed like patient demonstration?

   Criterion measures utilized?

   How determined?

7. How did the provider determine and deal with obstacles to learning?

8. How did the provider document in the record that teaching and learning had occurred?

Experience 4 study questions

1. What is a brief working definition of behavior modification?
2. What are possible applications of behavior modification to health care?
3. In what ways is use of behavior modification therapy in health care compatible with the concept of the "activated consumer"?
4. What behavior modification techniques are outlined in this group session?

Experience 5 study questions

1. What is the stated purpose of the group?
2. What is the nature of the group, e.g., didactic, interactional?
3. Does the group appear to be working in a way consistent with its stated purpose?
4. In what ways are teaching and learning illustrated within the group?
5. What patterns of interaction may be observed within the group?
6. What type of leadership may be observed in the group?

Experience 6 study questions

1. What is the stated purpose of the group? What is the nature of this group? What type of leadership exists--formally and informally?
2. Who are the members of this group? What is their motivation for joining?
3. How does this group articulate with PHP and with Penn-Urb? What is the nature of their franchise? What is the nature of their input re advisement and policy making? To whom is the group accountable?
4. How does this group work--contributing and listening, synthesizing, arriving at consensus?

Experience 7 study questions and activities

The primary requirement is for the student to write an article about some aspect of health care at Penn-Urb for submission to PHP Newsletter. The purpose is to use this medium for patient education. Other optional experiences include involvement in an interviewing and picture-taking session by news media in the PHP network, participating in an interview with reporter regarding the student's Penn-Urb clerkship, or interviewing a PHP staff member regarding network attitudes and participation, and consumer participation and education. Stimulus questions might include the following:

1. Who is the PHP/Penn-Urb consumer demographically?
2. Who are the targets of the different PR thrusts?
3. What messages are intended to be conveyed?
4. What different media are employed and for what purposes?
5. How does an organization go about attracting and utilizing the media for its purposes and what are the professional/legal restrictions on advertisement of physicians' services.
6. What input do consumers have in the use of media?
7. In what ways is consumer education accomplished through the media?

D. Module 4: One Quality Health Care for All

Rationale

Today health care is a right rather than a privilege, and therefore it must be available to all persons at consistent quality. When health care is examined within the context of accessibility, continuity, comprehensiveness, and accountability, it becomes clear that there are gross inequities which have their bases in socioeconomic, ethnic, and geographic factors. Future providers and planners of health care will need to be sensitive to these issues so that newly developing health care systems will overcome the inequities.

Objectives

... Given a question about the type of medical care currently available to patients in the U.S., the student should include the following points:

- Traditional patterns of care for middle class: Fee-for-service, private practice physician
    - Types of practice through which care is delivered
        - General practitioner who treats whole family
        - Family health needs met separately by independent specialists
    - Emphasis on episodic care, rather than on prevention and modification of health related behavior
    - Financial incentives work against preventive medicine
    - Patient education low priority
- Traditional patterns of care for poor
    - Setting in which care is provided
        - Hospital clinic a typical setting for care
            - No constant personal provider with whom one can identify in clinic settings
    - Patient education not provided for routine health care issues
    - Third party payments through public funding usual method of reimbursement

... Students should be able to describe the differences between Penn-Urb and traditional models for all classes

- Attempt to make method of payment independent of style, quality of care
    - Problems involved in attempting to offer uniformly high quality care, despite the different payment methods used in a primary care center that has many forms of reimbursement

Assumption that pre-payment would allow comprehensive care to be offered to all patients

Penn-Urb established with aim of providing high quality care across socio-economic spectrum

Ecology of the consumer seen as important component of high quality health care

Traditional patterns of medical care had too much fragmentation of care to allow much knowledge of the ecology, including dynamics of the family

Prerequisites

The student should preview the videotape in which Dr. Hertz conducts interviews with "Ghetto", "Bryn Mawr", and "Penn-Urb" types of patients vis a vis their health care. Student should also have read the Health-Pac article and the article by Bodenheimer in the September 3, 1970 issue of Inquiry III entitled "Patterns of American Ambulatory Care."

Learning Experiences

The broad goals of this module require the student to define components of "Quality" care, look at traditional patterns of care for middle class and poor in terms of their absolute and relative quality, and look at Penn-Urb's health care. The criteria for assessment will be the degree of quality and extent to which there is one quality of health care for middle class and poor patients. The student will be required to make a comparison of Penn-Urb health care to the patient's previous health care, to identify ways in which Penn-Urb is still a two-class system, to point out the problems in overcoming a two-class system, and to suggest means for achieving a one-class system in Penn-Urb.

The opportunity for an analysis of Penn-Urb's quality health care will be offered through interviews with subscriber and clinic patients regarding their health care experience at Penn-Urb compared to their previous health care experiences. An interview form should cover elements of "quality": accessibility, accountability, continuity, and comprehensiveness. Following the interviews, the student will meet with staff to discuss impressions of the interviews. Each student should interview at least two patients who will have been screened by providers.

A checklist for the interviews includes the following:

Accessibility: 1. Appointments

2. 24-hour availability

3. Use of referrals

4. Geographic accessibility

Continuity: 1. Primary provider who coordinates all activities vs. primary team relationship to sub-specialities

Comprehensiveness: 1. Education--explanation of problems, cf. Rx, preventive care and education

2. Understanding/integration of psycho-social factors

3. All medical/mental health needs met; not fragmented

4. Relationship of health center to community

5. Periodic follow-up

Accountability: 1. Consumer input--formal (grievance procedure, decision in hiring/firing, policy changed) and informal (feedback to provider)

2. Community out-reach

3. Peer review/chart audit

A suggested pattern of questions follows that used in the Hertz videotape of the three patient types. Those questions were:

1. Where do you live? Main source of income?
2. Where do you get medical care? For example, do you go to a private physician, health center, hospital? How about if you had a problem with allergy? with a skin rash? a feeling of serious depression or anxiety? or needed a general checkup? If you need to go to a "specialist" (e.g., a surgeon), who pulls it all together? who follows up?
3. How do you get to your physician, health center or hospital?

   Transportation, parking, wheelchairs

   Office hours: do you miss work?

   What happens if you are ill on weekends or at night?
4. Can your physician (other provider) explain things to you well? Is there time? Is there a barrier between you?
5. Have you been satisfied with your health care? If you had a suggestion or a complaint how would you handle it? Would your physician care?

E. Module 5: Economics of HMO's

Rationale

The economics of health care is an important topic for study because financing affects the delivery of health care and shapes the type of practice in which students will be involved, the quality of care that will be offered each patient, and ultimately will reflect back on the general quality of life in the society.

Objectives

... The student should be able to explain the issues related to efficiency in the financing of health care from the following perspectives:

- Consumer: Methods by which the consumer pays for health care
    - Concurrent payment--another item in the household budget
        - Assumes medical care is an acceptable risk to carry without insurance
        - Particularly applicable for small sporadic expenditures (occassional episode, occassional prescription)
    - Prepayment--consumer pays into an insurance fund
        - Actuarially figured on the risk of incidence of illness
        - Spreads the base of payment
        - Professional handling of money
- Provider: How the provider receives payment for care
    - Fee-for-service payment--for each service provided
        - Incentive to produce more units of service
        - For each transaction the consumer has choice of provider
    - Capitation--payment per individual for medically determined number of specified services for specified length of time
        - Provider shares the risk of illness/utilization of services with consumer
        - Incentive to keep the individual healthy, i.e., not utilizing service

... The student should be able to describe the various models of financing of care in America.

- Concurrent: fee-for-service is the most common method of payment for primary care
- Prepayment: fee-for-service is the usual commercial. Blue Cross + Blue Shield approach
- Prepayment: capitation is the Health Maintenance Organization approach
    - Provider has the financial incentive to keep patient healthy and to have the patient utilize the most cost-effective mode of delivery
        - Has led to lower hospital utilization rates for HMO's
        - Generally, higher utilization of primary care services and greater utilization of preventive services
        - No evidence that health status is inferior, and some evidence that better health status is achieved
    - Provider can budget resources and utilize efficient managerial techniques

... The student should be able to explain how financing affects equity of medical care.

- Personal medical care resources are allocated by the market mechanism in America
    - Problem of catastrophic cost of prolonged treatment
    - Problem of rising cost of regular treatment inhibiting some consumers from receiving care
    - Solution either a non-market allocation of resources, i.e., a planning model, or making the base of payment more equitable, i.e., redistributing purchasing capability
        - Since the HMO is not a charitable activity, everyone must be enrolled by paying a premium

The HMO is cost effective, though, which appeals to funding agencies such as Medicaid and Medicare.

Also, can help bring health resources to under-served communities by providing a rational structure for practice

... The student should understand the financial development of the HMO.

Planning stage: is the HMO feasible?

Do the necessary resources exist (physicians, hospitals, capital, management, consumers) or is there a good prospect that they can be pulled together

Relative inexpensive, but need entrepreneurial talent

Development stage: pulling the resources together

Determining and setting up corporate structure to implement plans

Constructing or renovating necessary facilities

Bringing together necessary providers

Generally requires $1-1½ million in front end funds

Implementation stage: launching the HMO

Starting to provide care

Need for "turn around funds" to support HMO in period until enrollment catches up to minimum level of expenditure which was necessary to offer service

Titrating expansion: new resources vs. increases in enrollment

Prerequisites

The student will be conversant with the material in the following references prior to participating in tutorial conferences and seminars.

1. Saward, Ernest W. The relevance of the Kaiser-Permante experience to the health services of the U.S. Bulletin NY Acad. Med. 46: 707-17 (September 1970).
2. MacColl, William A. Group practice and prepayment of medical care. Washington: Public Affairs Press, 1966.
3. Donabedian, Avis. An evaluation of prepaid group practice. Inquiry, VI (3), pp. 3-28.
4. Saward, Ernest W., et al. Documentation of twenty years of operation and growth of a prepaid group practice plan. Medical Care, VI (3), pp. 231-44 (May-June 1968).

Learning Experiences

Since the material on the economics of HMO's is largely cognitive, we have undertaken to develop autotutorial materials for this area. A cassette recording of the Perloff ID 103 presentation has been made. This is now transcribed and edited and will be retaped in order to intersperse self-administered items testing the understanding of basic principles.

The student will be expected to achieve mastery of these materials prior to involvement in tutorial disucssions with the Penn-Urb economist/administrator.

F. Module 6: Sociologic Considerations

Rationale

The problems involved in delivering quality health care to the United States population today are complex. Appropriate resolution of these problems will derive not alone from the biomedical sciences but must involve the social sciences as well if a healthy population is to be the objective. This is particularly relevant to the physician in-training who may be contemplating a professional career in an HMO. Here preventive medicine as well as episodic care depends on an environmental and contextual understanding of the population being cared for. The concepts, skills, methodologies, and theories of the social sciences provide the physician with a broader knowledge base for managing the social, psychological, historical, political and economic dimensions of health care. In addition, to move the present massive ongoing structure of health care delivery in socially relevant directions, the physician of tomorrow should know something of the strategies of planned change and dissemination of innovation.

Objectives

Planned Change

... The student should understand the phenomena of planned change in personality and social systems.

The student should know the definition of planned change

The student should understand the motivation for a personality or a social system to change

The student should understand the phases of planned change

The student should understand the process of influence and the mechanisms underlying each stage of change

The student should understand the role of the change agent

The student should be familiar with methods of changing individuals and systems

Innovation

... The student should understand the phenomena of innovation as it relates to health systems

The student should know the definition of innovation

The student should understand the phases of innovation

Students should understand the attributes of an innovation

Students should understand the types of innovation

Students should understand the characteristics of early adopters

Professionalization

... The student should have a working knowledge of the essential elements which define a profession.

... The student should be able to describe the differences among professionalization attitudes among private practice physicians, hospital based specialists, and HMO physicians, with respect to the following dimensions:

  The student should understand the process of professionalization

  The student should be familiar with the controls which affect the profession

  The student should be aware of the relationships of medicine with other health professions

  The student should know about professional associations and colleague relations

Organizations

... The student should know the elements of an organization.

... The student should understand the relationship between the individual and the organization.

... The student should be familiar with the structure of an organization.

... The student should know about organizational goals

... The student should understand how power operates in an organization.

... The student should understand how conflicts occur in an organization.

... The student should understand the environment in which an organization exists.

... The student should understand interorganizational relations.

... The student should be able to apply these general concepts to the context of specific health care organizations.

Research in Health Care Delivery Settings

... The student should understand the process and importance of behavioral science research in health care delivery settings.

- The student should understand the functions of research
- The student should understand the *structural components* of a research project
- The student should understand how *research is conducted* in the setting

Prerequisites

For students with no sociology background, read Inkeles: What is Sociology?

Other required reading will include:

1. Friedson, E. Profession of Medicine (selected chapters)
2. Trela, James and O'Toole, Richard. Roles for Sociologists in Service Organizations.

Other supplementary readings will be available on request in the student's area of interest. These include:

3. Lofland, John. Analyzing social settings.
4. Rogers and Shoemaker. Communication of innovation.
5. Georgeopolos, Basil. Organization research on health institutions.
6. Riley, M. W. and Nelson, E. Sociological observation.
7. Franklin and Osborne. Research methods: Issues and insights.
8. Emery and Trist. The causal texture of organizational environments.
9. Case studies on organizational issues developed at Penn-Urb.

Learning experiences

Case studies analyzing various aspects of health organizations will serve as the major vehicle by which these sociological concepts will be taught and applied. Each of the five topical areas will be dealt with as it applies to the cases being considered.

The material will form a basis for small group discussions and individual conferences. Specific issues of interest to a student or to the group will be further explored through group participation in focused interviews with the providers who were active in the events being analyzed in the case studies. Emphasis will be placed on meeting an individual student's needs and interests as they relate to social science and research in the health setting. Students spending extended periods at Penn Urb can be introduced to the technique of participant observation.

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Resource Paper No. 5

PROPOSED CLERKSHIP FOR THIRD-YEAR MEDICAL STUDENTS: RATIONALE, OBJECTIVES, METHODS AND PREREQUISITES *

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* From Appendix J of the University of Washington Final Report, Project to Develop Curriculum For Physician Training in HMOs

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
I. CLINICAL GOAL Primary Care The student will gain knowledge of and skill in dealing with the common health problems encountered in providing primary medical care.	OVERALL: 1. Participation in patient care under faculty supervision, with patients pre-selected for their instructional value. 2. Seminar discussions requiring students to research, present, and discuss pertinent information. 3. Assigned readings.	
SUBGOAL The student will develop skills and knowledge in clinical data gathering with ambulatory patients with particular reference to common problems. In doing this, he will be able to:		Given N new patient/physician encounters, the student will satisfy the preceptor as to his ability to:
SKILL		
Objective 1: Take a brief history of the present illness.	1. See Overall Methods.	1. Take a satisfactory patient history.
Objective 2: Perform a screening physical examination.	2. The preceptor will: Demonstrate effective use of health care team, and provide explanation of sound practices and potential problems.	2. Perform an adequate screening physical exam.
Objective 3: Utilize health care team personnel to acquire and record in a timely manner, information regarding the patient.		3. Interact with health care "team" personnel in gathering and recording patient data. Preceptor evaluations will be based on direct observation or review of video tapes and will utilize the "Interview Evaluation Checklist."

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
I. CLINICAL GOAL Primary Care (Cont'd)		
SUBGOAL Acquire skills in patient interviewing. The student will be able to:		
SKILL		
Objective 1: Establish and maintain rapport with the patient. Objective 2: Encourage and allow the patient to describe problems in his own terms. Objective 3. Ask "open-ended" questions pertinent to the expressed or suspected problems. Objective 4: Demonstrate an ability to utilize interviewing principles as described in "Skills of the Medical Interview."	1. The precepts will: Choose appropriate patients for the student to interview, building from simple to complex, and provide examples of common interviewing problems. 2. Observe and critique the students' interviewing techniques. 3. Provide clear feedback to the student regarding his/her interviewing behaviors, effects on others and overall communication skills. 4. Demonstrate techniques which are based on current scientific knowledge and which work for you.	Given N patient/physician encounters, the student will satisfy the preceptor that he can effectively apply the indicated interpersonal skills in dealing with the patient. Preceptor evaluating will be based on direct observations or review of video tapes of encounters.
Objective 5: Write a patient profile based on a taped patient interview.	5. Discuss openly with students the pros and cons of various approaches in dealing with patients, considering the characteristics of the patient and the physician.	Given a taped patient interview (this may be from a previously prepared interview selected for evaluation purposes or may be selected from any other source). The student will write an appropriate patient profile.
SUBGOAL The student will develop skills and knowledge in clinical problem definition, with primary emphasis on ambulatory patients suffering from common problems. In doing this he will be able to:		
KNOWLEDGE	The preceptor will:	
Objective 1: Demonstrate his awareness of which are the ten most common problems.	1. Discuss with the student pertinent facts, concepts and ideas which are current and relevant to your practice.	1. List from memory eight of the ten most common medical problems.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
I. **CLINICAL GOAL** Primary Care (Cont'd) (These problems were identified after looking at data from the Royal College of General Practitioners in England, and review of family physicians' practices in the State of Washington.)	2. Acquaint the student with available resources - consultants and literature - pertinent to common problems. 3. Point out clinical examples of these problems and their natural course during the course of patient care.	
Objective 2: State correctly the natural course for each of these problems.	4. Demonstrate techniques in diagnosis, treatment and prevention.	2. Given three from among the ten most common medical problems, correctly describe their natural course.
Objective 3: State correctly the diagnostic and therapeutic techniques commonly applied for prevention and treatment of these problems.	5. Give students feedback on your assessments of their knowledge and skills in context of clinical practice. 6. Adequately evaluate the student's knowledge and skills at the end of the course.	3. Given three from among the ten most common medical problems, correctly describe the commonly applied diagnostic and therapeutic techniques for their prevention and treatment.
SKILL		
Objective 1: Select appropriate data and justify his selection of historical, physical, and laboratory data in terms of common high-probability diseases and cost effectiveness.	1. See Overall Method 1. The preceptor will: 2. Explain the appropriate criteria for sound data collection. 3. Demonstrate effective data collection with several patients, and explain the rationale for the judgements made.	1. Given a patient-physician encounter selected by the preceptor and involving one of the ten most common disease entities, the student will select appropriate historical, physical, and lab data and satisfactorily justify his selection to the preceptor.
GOAL The student will develop knowledge and skill in clinical problem solving with ambulatory patients with particular reference to common problems. In doing this, he will be able to:		
Objective 1: Review initial information gathered about the patient and make cost-effective decisions as to which laboratory tests to select in which logical order.	The preceptor will: 1. Ask students questions designed to elicit logical thought in solving problems. 2. Follow a problem-solving sequence in presenting cases during conferences.	1. Given a set of patient data, the student will select appropriate lab tests in reasonable sequence, and justify selections to the preceptor.
Objective 2: Develop an appropriate differential diagnosis from the efficiently selected data.	3. Explain the rationale for your judgements to students in the course of clinical work.	2. Given a comprehensive set of patient data selected by the preceptor, develop an appropriate differential diagnosis and justify to the preceptor.

CLINICAL GOAL Primary Care (Cont'd)

Objective 3: Make appropriate decisions regarding:

- a) Hospitalization or continued "outpatient" treatment.
- b) Referral or continued management.
- c) Nature of follow-up, whether by phone, return appointment, delayed callback, or use of other personnel.
- d) Intervals for follow-up.
- e) Referral to appropriate specific agencies.

SUBGOAL

The student will acquire knowledge of, and skill in, the use of the telephone in delivering health care. The student will be able to:

Objective 1: Explain the principles of telephone management of patients.

Objective 2: Evaluate the effectiveness of application of the key principles of telephone management of patients by self and others.

Objective 3: Employ the key principles of telephone managment of patients when interacting over the telephone with patients.

Objective 4: Explain the principles of effective telephone consultation.

4. Ask the student to explain his/her logic, decisions, and rationale; and then critique the quality of the judgment.
5. Review the student's records on histories, physical exams, laboratory data and on-going management; and discuss the quality of the student's judgments.
6. Discuss the pros and cons regarding hospital vs. out-patient management of problems, and why.
7. Discuss instances in which it is advisable to recommend consultation, and why.
8. Discuss and assist with the appropriate use of referrals to other medical disciplines vs. continued management.
9. Discuss the appropriate interval and mode of follow-up using the phone and other personnel.
10. Evaluate and give feedback to students regarding their clinical judgment and problem solving abilities.

The preceptor will:

1. (Objectives 1, 4 and 7) Discuss with the student the conceptual and theoretical bases, the limitations and effectiveness, and the psychological ramifications of telephone management (1) telephone consultation (4) and telephone referral (7).
2. (Objectives 2, 5 and 8) Allow the student to observe and critique the preceptor's telephone management, consultation and referral according to key principles and effectiveness.
3. (Objectives 3, 6 and 9) Provide the student with opportunities to utilize telephone management, consultation, and referral principles.

3. Given N patients selected by the preceptor, make the indicated decisions and justify them to the preceptor.

1. Orally, or in writing, explain the key principles of telephone management of patients.
2. Given the appropriate patient chart and an audio tape of a telephonic physician/patient encounter, identify application(and misapplication) of telephone management strategy.
3. Given a patient telephonic inquiry and the patient's chart. The student will deal with the patient to the preceptor's satisfaction (this may be audio taped for use in #2 above).
4. Orally or in writing, explain the key principles of telephone consultation of patient problems.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
I. CLINICAL GOAL Primary Care (Cont'd)		
Objective 5: Evaluate effectiveness of the application of telephone consultation principles by self and others.		5. Given the appropriate patient chart and an audio tape of a telephonic physician/consultant encounter, identify application (and misapplication) of telephone consultation.
Objective 6: Employ key telephone consultation principles.		6. Given a patient problem requiring telephone consultation, the student will request consultation via telephone under direct supervision of the preceptor (audio tapes of this consult may be used in 5 above.)
Objective 7: Explain the principles of effective telephone patient referral.		7. Orally or in writing, explain the key principles of effective telephone patient referral.
Objective 8: Evaluate effectiveness of the application of telephone patient referral principles by self and others.		8. Given the appropriate patient chart and an audio tape of a telephonic physician/patient encounter, identify application (and misapplication) of telephone management strategy.
Objective 9: Employ key telephone patient referral principles.		9. Given a patient telephone inquiry and the patient's chart, the student will make an effective referral to the preceptor's satisfaction.
SUBGOAL The student will develop skill in the maintenance of clinical records which aid in problem solving and provide continuity. In doing this, the student will be able to :	The preceptor will:	Given a collection of unorganized patient data provided by the preceptor, the student will organize and present the relevant information to the preceptor's satisfaction in such a manner that it will be:
Objective 1: Organize patient data so as to be able to communicate it to other health care personnel.	1. Orient the student to the patient record keeping system in the office.	1. Clear and comprehensible to other health care personnel.

I. CLINICAL GOAL Primary Care (Cont'd)

Objective 2: Organize data so as to assist in formulating diagnostic and therapeutic plans	2. Discuss the pros and cons of his medical record keeping system in the context of his style of practice.	2. Useful in developing treatment plans. Given N patient-physician encounters observed or participated in by the student, the student will prepare patient's summaries acceptable to the preceptor using each of the following methods:
Objective 3: Use dictating equipment in recording patient data.	3. Review the student's records and discuss the clarity and organization of data which assists in formulating diagnostic and therapeutic plans.	3. Dictating equipment
Objective 4: Use the telephone in recording patient data.	4. Explain his rationale for diagnostic and therapeutic plans and the format he uses in recording this data.	4. Telephone
	5. Assist the student in the appropriate use of the telephone as a means to obtain clinical data and make medical decisions.	

SUBGOAL

The student will develop skill in prospective analysis of the health of his patients. This will include acquring an understanding of the principles of preventive care, cost benefits, and the added motivation for such care in a prepaid system. The student will be able to:

KNOWLEDGE

		Orally (or in writing):
Objective 1: Explain the principles of preventive care as applied in the HMO and fee-for-service settings.	1. Discuss health risks and medical interventions whenever applicable during care presentations/conferences.	1. Explain principles of preventive care as applied to fee-for-service and HMO settings.
Objective 2: Explain the cost-benefits of preventive care in a prepaid system.	2. Ask the student to outline health risks in association with patient care in the office and hospital, and supplement student's knowledge by pointing out important risks.	2. Explain the cost-benefits of preventive care in a prepaid system.

I. CLINICAL GOAL Primary Care (Cont'd)		
Objective 3: List N measures which will tend to reduce the N most economic health care risks.	3. Discuss methods of reducing risks identified during case presentations.	3. List N measures which will tend to reduce the N most economic health care risks.
Objective 4: Analyze his actual experiences at Group Health Cooperative and identify specific preventive care practices he engaged in.	4. Help the student think through and use methods to effectively reduce health risks in the context of patient care.	4. Based on experiences in Group Health, identify and give the rationale for the N major preventive care practice at the facility.
Objective 5: Identify and describe major health risks each patient encountered.	5. Where possible, involve the student in planning and delivering premature care.	5. (Given a patient profile or chart) Describe the N major health risks confronting the patient.
SUBGOAL Develop a sensitivity to the psycho-social impact of a disease on a patient and his family, and understanding of the physician's responsibility, and treatment approaches for dealing with the impact. The student will be able to:		
KNOWLEDGE		Orally (or in writing):
Objective 1: Discuss with the student the effects of key humane interactions on health. Explain which and how human interactions in the patient's immediate environment are important to be aware of in dealing with his health problems.		1. Identify a "significant" human interaction which can infringe on a patient such that it affects his health and offers a rationale for the effect.
	The preceptor will:	
Objective 2: Explain the psycho-social impact of the N most common diseases on the patient and his immediate social environment.	1. Expose the student through case histories, ongoing patients and selected readings to the psycho-social concomitants of various common disease entitities.	2. What are the N major psycho-social impacts (any selected common disease) upon the patient and his immediate social environment?

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
CLINICAL GOAL Primary Care (Cont'd)		
Objective 3: Explain the physician's responsibility and approaches for dealing with psycho-social impact of disease.	2. Critically discuss the currently accepted social ethic regarding the physician's responsibility and approaches to dealing with the psycho-social concommitants of disease. Further the preceptor should orient the student to the variety of intra-and inter-house resources for helping the patient with the psycho-social concommitants.	3. What is the physician's responsibility when dealing with the psycho-social impact of..... _____ disease? _____ (any selected common disease)?
SKILL		
Objective 1: Evaluate findings available for a patient and assess the psycho-social impact of his disease on the patient himself and his immediate social environment.	3. Familiarize the student with critical signs of psycho-social distress both disease specific and more generally through case-histories and selected bibliographic referrals.	1. (Given a particular chart or summary of findings) From the data provided, what evidence do you find that this disease process is having an impact on the patient's social environment?
Objective 2: Recommend and justify treatment for the above decisions.	4. Model and discuss the cognitive process utilized in the decision-making process regarding the appropriate treatment.	2. (Given a particular chart or patient summary) From the data provided: a) recommend intervention for alleviating the psycho-social impact of this disease on the patient and his environment. b) Offer a brief rationale for your recommendations.
Objective 3: Determine and describe the urgency of the problem to the patient, his family, and his community.	5. Discuss with the student the urgency and disruptiveness of special problems and model appropriate handlings.	3. (Given a particular chart or patient summary) From the data provided, evaluate the level of urgency. The psycho-social element represents for.. a) The patient b) The family c) The community
GOAL Understand the major differences between a community health care facility (such as an HMO hospital) and a University affiliated teaching setting. The student will be able to:		

I. CLINICAL GOAL Primary Care (Cont'd)	The preceptor will:	
Objective 1: List the key differences in policies, procedures, goals, and practices between a community hospital and a teaching hospital.	1. Didactically introduce the student to the policies, procedures, goals and practices of the community health care facility.	1. For each of the following parameters, policies, procedures and goals, identify the N major differences between a community and a teaching hospital.
Objective 2: Describe the differences in patient population, both in terms of economic status and distribution of medical problems, between a community hospital and a teaching hospital.	2. Through selected bibliographic references and didactic communication introduce the student to demographic elements noted in objective 2.	Orally (or in writing): 2. Describe the differences in patient population, both in terms of economic status and distribution of medical problems, between a community and a teaching hospital.
Objective 3: Describe the implications of increased emphasis on primary care in a community health care facility (as compared to a university affiliated setting) on physician delivered care.	3. Discuss with the student the differential concepts of primary care in the two settings and the implications for health care.	Orally (or in writing) answer the question: 3. What are the implications of increased emphasis on primary care in a community health care facility (as compared to a university affiliated setting) on physician delivery care.

INSTRUC[illegible]AL GOALS AND OBJECTIVES	INSTRUCTIONAL ME[illegible]S	EVALUATION METHODS
I. CLINICAL GOAL Continuity of Care The student will gain knowledge and skill in providing comprehensive, continuous health care on a longitudinal basis. GOAL Understand and practice the principles of continuity of care, particularily within a closed medical community. The student will be able to: KNOWLEDGE	The preceptor will:	
Objective 1: Define continuity of care, longitudinal treatment, episodic treatment and closed medical community.	1. Elaborate for/with the student the operational definition of continuity of care, longitudinal treatment, episodic treatment, and closed medical community.	1. Define the terms: Continuity of Care Longitudinal treatment Episodic treatment Closed medical community
Objective 2: Differentiate between longitudinal and episodic health care delivery.	2. During the course of planning long-term health care for HMO members, clarify elements which differentiate this planning from that which relates only to episodic.	2. Describe the N most important differences between longitudinal and episodic health care delivery.
Objective 3: Explain the major elements of continuity of care.	3. A) Identify the basic characteristics of a closed medical community manifest at your HMO facility. B) During the course of health care delivery, identify functions, patterns and trends, etc. which are changed by or a result of the community being closed.	3. Identify the N major elements of continuity of health care and explain how they impact upon health care delivery.
Objective 4: Describe a closed medical community and its implications to medical practice.		4. What are the implications to health care of a closed medical community?

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
I. CLINCIAL GOAL Continuity of Care (Cont'd)		
Objective 5: Discuss the differences and similarities in delivery of long-term health care within a closed prepaid community and open fee-for-service community.		5. How does long-term health care delivary differ between open fee-for-service and closed prepaid medical communities?
Objective 6: Evaluate student-delivered care to the extent that principles of practice in a closed medical community and continuity of care were properly applied.		6. Evaluation of the student-delivered care. Identify the preceptor whose continuity of care processes within a closed medical community were applied.
SKILL		
Objective 1: Demonstrate at a level appropriate to his training, delivery of health care on a longitudinal basis in a closed medical community.	Select patients whose medical progress over time can be reasonably predicted and permit the student to manage their treatment with minimum supervision over the period of the clerkship.	1. Given N patients' charts selected prior to the clerkship, and responsibility for planning and delivering required health care (within the limit of the student's level) during the clerkship, the student will satisfy the preceptor with respect to his ability to: A) Evaluate prior therapy B) Develop a treatment plan C) Interact with the patient D) Manage the appropriate therapy, i.e. deliver the care

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
II. PRACTICE ORGANIZATION AND MANAGEMENT GOAL The student will acquire knowledge of the business personnel, and personnel and personal management aspects of medical care and the need for the primary care physician to establish priorities in his approach to providing medical care in his community. The student will be able to:	The preceptor will:	
1. Demonstrate general knowledge of business applications in practice, by "establishing" a practice.	1. Introduce the student to the business record keeping system in his practice. 2. Discuss organizational, administrative processes in the office. 3. Have the business personnel discuss billing, insurance, and other administrative processes in the office.	1. You are assigned the job of physician-in-charge of an ambulatory primary care HMO clinic which will serve an urban patient panel of approximately N thousand. What professional, para-professional, and support personnel would you require for the practice to function?
2. Identify the N most common types of office personnel and their role and contribution to the primary care practice setting.	4. Share with students rationale for the types of personnel in his office, their job descriptions and specific contributions.	2. Describe the types of office personnel (physicians, allied health, and staff) that are needed in a primary care practice setting to the satisfaction of the preceptor.
3. Establish appropriate priorities in approach to providing medical care.	5. Question the student as to how he/she plans to utilize various personnel in carrying out patient care. Critique the judgments made. 6. Toward the end of the clerkship, discuss the student's perception of personnel he/she would choose to hire under varying conditions of future practice. 7. Share the rationale for his priorities in providing care. 8. Inquire into the student's judgments regarding priority setting.	3. A) (Given a set of office problems) Which of the described office management problems appear most urgent. Justify your selection. B) (Given a set of presenting patients with problems of varied seriousness, some with appointments, and some without) Which patient would you see first, which last? Why these prioritizations? Which would you refer to other HMO personnel, professional or para-professional?
4. Exhibit appropriate "art" in personnel, staff, and peer relations.	9. Share his management philosophy regarding personnel relationships. 10. Observe and critique the student's relationships with others, and his/her effect on others.	4. The preceptor will subjectively and objectively evaluate the student's ability to interact with professional, paraprofessional, and support personnel. Where explicit deficiencies exist, they will be documented and reported to the course chairman and student for remediatio

II. PRACTICE ORGANIZATION AND MANAGEMENT GOAL (Cont'd)

11. Provide support and counseling pertinent to interpersonal relationships.

12. Serve as an effective role model in his relations with office and hospital personnel, peers, students and others.

13. Serve as a role model in his life style by providing time for both professional and personal responsibilities and interests.

14. Share his rationale for priorities and decisions in working out equitable professional and personal life commitments.

15. Discuss openly with the student the needs of medical practice, the community, and self which must be considered in establishing realistic plans for professional and personal life.

16. Discuss the student's future career plans in terms of his/her personal and professional attributes.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
II. PRACTICE ORGANIZATION AND MANAGEMENT GOAL (Cont'd)		
GOAL Understand the principles of cost effectiveness in health care delivery including the differences typically found in a prepaid system. The student will be able to:		Orally (or in writing):
Objective 1: Explain the principles of cost-effectiveness in health care delivery.	1. Instruct the student in the principles of cost-effective medicine as applied in an HMO setting and in fee-for-service practice.	1. What are the principles of "cost-effective" health care delivery?
Objective 2: Describe and explain the differences in the application of cost effectiveness principles in health care delivery within a prepaid system.	2. Where you feel your cost-effective practice differs from conventional practice, explain how your pattern differs. - Why you make the differing management decisions - How the patient benefits - How the group benefits	2. How does the application of "cost-effective" practice principles differ in an HMO setting from the application in fee-for-service practice? Who benefits? How do they benefit?
Objective 3: Evaluate the care pattern delivered for a particular disease and patient, and determine if the delivery was cost-effective.	3. Where the student has delivered care, show where his care pattern could be more cost-effective and reinforce positively cost-effective management choice using the question in #2 above.	3. A. Given a patient to manage, 1. apply cost-effective principles to the treatment plan. 2. Justify choice of patient management on the basis of cost-effectiveness principles. B. Given a patient work-up and summary of care delivered 1. Identify where cost-effective measures have been correctly applied. 2. Identify cost-effective measures which could/should have been used. 3. Give a rationale for your choices.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
III COMMUNITY GOAL The student will gain knowledge of and skill in dealing with and using community resources which relate to health. The student will be able to:	The preceptor will:	
Objective 1: Describe the major health hazards in the community.	1. Orient the student to major community health hazards during the early part of the clerkship.	1. Identify N major health hazards in the community.
Objective 2: Describe the appropriate role of the HMO physician with respect to these hazards.	2. Point out to the student evidence of community health hazards when individual patients are affected by them. 3. Serve as a role model through his action toward the reduction of such hazards.	2. A. Describe the present role of the HMO physician with respect to these hazards. B. Is this role appropriate and effective? Justify your response.
Objective 3: Identify essential supporting agencies and professionals in the community and their functions as they relate to health care.	4. Discuss contrasting roles taken by various physicians in the community, evidencing the interplay between community needs and the physician's personal styles, talents and attidudes. 5. Acquaint the student with the use of directories for service, medical and non-medical, in the community.	3. (The student may select a given community health care support agency or one may be specifically assigned). Describe the role of the ________ agency in the community and the means by which an HMO physician can gain access for augmenting the health care delivered to HMO members.
Objective 4: Work with community agencies and professionals in augmenting health care delivered by the HMO.	6. Point out agencies he uses in patient care and the processes by which he engages their services. 7. Ask the student questions in the care of patients which elicit ideas regarding which agencies might provide useful services in specific areas. 8. Acquaint the student with key people in the community and their contributions. 9. Facilitate student contacts with these persons, especially when an issue relates to patient care or specific student project. 10. Facilitate student involvement in community where action is being taken on behalf of health hazards.	4. With N selected patient(s) who can benefit from community health services, the student will serve as the HMO and patient's liaison and facilitate delivery of the healt care for the patient to the satisfaction of the preceptor.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL The student will acquire knowledge of and experience with a pre-paid health care delivery system to facilitate a more informed career choice decision. **GOAL** Understand the function, theory, organizational structure, and legal and economic aspects of HMO's and differentiate these from fee-for-service system. The student will be able to: **KNOWLEDGE** **Objective 1:** Explain the organizational structure, legal, economic, and administrative principles and functions of HMO's.	1. All objectives should have didactic presentation, with appropriate audiovisual support, either in large or small groups.	1. What are the organizational structure, legal, economic and administrative principles and functions of HMO's? This may be evaluated by: A. Short answer questions B. Objective questions
Objective 2: Explain the organizational structure, legal, economic, and administrative principles and functions of the fee-for-service systems.		2. What are the organizational structure, legal, economic and administrative principles and functions of fee-for-service systems? This may be evaluated by: A. Short answer questions B. Objective questions

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 3: Contrast the organizational structure, legal, economic, and administrative principles and function of the HMO vs. the fee-for-service systems.		3. What are the differences in organizational structure, legal, economic and administrative principles and functions of the HMO's vs. the fee-for-service systems? This may be evaluated by: A. Short answer questions B. Objective questions C. Essay questions
Objective 4: Explain the advantages and disadvantages to the consumer of prepaid medical service and medical insurance.		4. What are the advantages and disadvantages to the consumer of prepaid medical service and medical insurance? This may be evaluated by: A. Short answer questions B. Objective questions
Objective 5: Compare the advantages and disadvantages to the consumer of prepaid medical service vs. medical insurance.		5. Contrast the advantages and disadvantages to the consumer of prepaid medical service vs. medical insurance. This may be evaluated by: A. Short answer questions B. Objective questions C. Essay questions
Objective 6: Explain the patient/physician relationship in an HMO and a fee-for-service setting	Observe the patient/physician encounter in an HMO. Encounter patients in an HMO.	6. What is the patient/physician relationship in an HMO and a fee-for-service system? This may be evaluated by: A. Short answer questions B. Objective questions C. Essay questions D. Providing the student the opportunity to encounter patients in the HMO setting and observe these encounters.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 7: Contrast the patient/physician relationship in the HMO vs. a fee-for-service setting.		7. What are the differences in the patient/physician relationship in the HMO vs. a fee-for-service setting? This may be evaluated by: A. Short answer questions B. Objective questions c. Essay questions
Objective 8: Explain the advantages and disadvantages to the physician of operating in a consumer-run organization.	Observe physicians operating in a consumer-run organization. Deliver health care in a consumer-run organization.	8. What are the advantages and disadvantages to the physician of operating in a consumer-run organization? This may be evaluated by: A. Short answer questions B. Objective questions C. Essay questions
Objective 9: Explain the procedures necessary to establish an HMO in a medium-sized metropolitan area in which such a facility does not presently exist.	Provide a simulated experience where the student goes through the procedures of establishing an HMO in a medium-sized metropolitan area.	9. What procedures are necessary to establish an HMO in a medium sized metropolitan area in which such a facility does not presently exist? This may be evaluated by: A. Short answer questions B. Objective questions C. Successful completion of a simulated experience of establishing an HMO.
Objective 10: Evaluate the adequacy of a proposal to establish an HMO and justify the evaluation.	Evaluate the proposal prepared in the simulated experience above and explain the evaluation.	10. What constitutes an adequate proposal for the establishment of an HMO? This may be evaluated by: A. Short answer questions B. Objective questions C. Essay questions D. Successful completion of evaluation and justification of same of proposal prepared for simulated experience.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 11: Explain the process by which a consumer joins an HMO.	Provide a simulated experience which allows the student to go through the process of joining an HMO.	11. How does a consumer join an HMO? This may be evaluated by: A. Short answer questions B. Objective questions
Objective 12: Explain the advantages and disadvantages to the consumer of prepaid medical service and fee-for-service care.	Observe the consumer receiving care in a prepaid medical service facility. Deliver care in a prepaid medical service facility.	12. What are the advantages and disadvantages to the consumer of prepaid medical service and fee-for-service? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions
Objective 13: Contrast the advantages and disadvantages to the consumer of prepaid medical service vs. fee-for-service care.	Provide a simulated experience which allows the student to be a consumer in a prepaid service facility.	13. What are the differences to the consumer of prepaid medical service vs. fee-for-service care? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions
Objective 14: Explain the role and responsibilities of the physician in an HMO setting and in a fee-for-service group practice setting.	Observe the physician practicing in an HMO. Deliver health care in an HMO.	14. What is the role and responsibilities of the physician in an HMO setting and in a fee-for-service group practice setting? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions
Objective 15: Contrast the role and responsibilities of the physician in an HMO setting and in a fee-for-service group practice setting.		15. What are the differences in the role and responsibilities of the physician in an HMO setting and in a fee-for-service group practice setting? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 16: Explain the behavior and attitudes concerning seeking health care of patients enrolled in HMO's.	Observe behavior and attitudes of members seeking health care in an HMO.	16. What are the behaviors and attitudes of members seeking health care in an HMO? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions
GOAL Develop knowledge of the skills in those practical features and medical practices which are characteristic of an HMO, using Group Health Cooperative at Puget Sound as the focus. SUBGOAL I-A Understand the differences between HMO's and fee-for-service settings in the use of the telephone in delivering health care. The student will be able to:		
Objective 1: Differentiate between the techniques used in telephone management of patients in fee-for service and prepaid settings.	Observe telephone management of patients in a prepaid setting. Practice telephone management of patients in a prepaid setting.	1. What are the differences between techniques used in telephone management of patients in fee-for-service and prepaid settings? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions D. Observing students applying technique of telephone management of patients in the prepaid setting.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 2: Differentiate between use of telephone consultation in fee-for-service and prepaid settings.	Observe telephone consultations in a prepaid setting. Perform telephone consultations in a prepaid setting.	2. What are the differences between use of telephone consultation in fee-for-services and prepaid settings? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions D. Observing students performing a telephone consultation in a prepaid setting.
Objective 3: Differentiate between telephone patient referral in fee-for-service and prepaid settings.	Observe telephone patient referrals in a prepaid setting. Perform telephone patient referral in a prepaid setting.	3. What are the differences between telephone patient referrals in a fee-for-service and prepaid setting? This may be evaluated by: A. Objective questions B. Short answer questions C. Essay questions D. Observing student performing a telephone patient referral in a prepaid setting.
SUBGOAL I-B Understand the purpose, organizational structure, and function of the walk-in emergency service offered at Group Health Cooperative.		

IN[illegible]CTIONAL GOALS AND OBJECTIVES	INSTRU[illegible]NAL METHODS	EVA[illegible]ION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.) The student will be able to:		
Objective 1: For the walk-in emergency service offered at Group Health Cooperative, explain the: - purpose - organizational structure - function	1. By didactic presentation, explain the purpose, organization and function of the walk-in emergency clinics. 2. Provide opportunities for the student to observe the clinic in operation and: - elicit questions from student regarding the clinic - respond to elicited or spontaneous student questions 3. Provide the opportunity for the student to function within the walk-in emergency clinic to the level of his training.	1. Answer the following either in writing or orally to the satisfaction of the preceptor: What is the: - purpose - organizational structure - function of the emergency walk-in clinic
SUBGOAL I-C Understand the skills and problems involved in the management of the HMO health care team in both preventive and therapeutic roles. The student will be able to:		
Objective 1: Define the role and the responsibilities of all professional, para-professional, and non-professional members of the Group Health health care team.	1. Didactic presentation of: - the roles and responsibilities of various members of the health care team, e.g., the physician, physician assistant, nurse practitioner, nurse (both registered and practical), nursing aid, social workers, ward clerks, etc. - management principles such as delegation of duties, oral and written reporting patterns, role and responsibility definitions, etc. - conflict resolution strategies such as active listening, "sounding board", confrontation, non-directive, etc.	1. Define the role and responsibilities of the following health care team members as they are used in the HMO setting: - (Select as many team members as desired). Alternate: - Provide several role descriptions as found in the specific HMO setting experienced by the student and require identification of the team member. - Other multiple chice items

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 2: Describe and explain the rationale for each team member's position in the organizational hierarchy of Group Health Cooperative.	2. When managing and utilizing the health care team, - model desired managerial behavior - "debrief" student on both what you did and the rationale - ask student to identify managerial strategies you apply and ask for a possible rationale	2. Describe the organizational structure of the HMO health care team and give a one-sentence rationale for the placement of each (or select member(s)).
Objective 3: Describe the major principles of utilizing and managing a health care team (including nurses, social workers, et. al.).	3. Make available opportunities for student to practice management of the health care team and then ask student to: - identify specific managerial strategies used - provide a rationale for having selected the strategy - evaluate its effectiveness	3. Describe the N major principles for the management of the health care team.
Objective 4: Identify the N most common inter-personal problems which can develop in a health care team.		4. Identify N most common interpersonal problems which effect the health care team.
Objective 5: Explain how the N most common interpersonal management problems in a health care team can be prevented and rectified.		5. For the following common managerial problems (select as many as desired): - what preventive measures may be taken? - what interventions can be used?
Objective 6A: Evaluate a health care team delivering patient care and identify interpersonal management problems experienced by the team. B: Recommend ways and give a rationale to rectify identified interpersonal management problems within a health care team.		6. Having observed a health care team in operation, to the satisfaction of the preceptor the student should: A. Evaluate the patient care delivered and identify interpersonal management problems experienced by the team. B. Recommend ways and give a rationale to rectify identified interpersonal management problems within a health care team.

IV. HMO EXPERIENCE GOAL (cont'd.)

GOAL

Demonstrate positive attitudes toward HMO's as systems for health care delivery, as future employment settings, and as training settings, after exposure to HMO training.

AFFECTIVE

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
Objective 1: Following training in an HMO, the student will respond equally or more favorably (compared to pre-training responses) to questionnaire items assessing attitudes toward HMO's as health care delivery systems and as possible future employment settings.	No special instructional strategies are required. Instruction is to be according to content-prescribed objectives written for the content area.	1. Attitudinal inventories appropriate to the given course are to be developed through the student evaluation process.
Objective 2: For courses taught at several sites, some of which are HMO settings, student mean ratings on course evaluation questionnaires for those students trained at HMO's will equal or exceed the mean ratings of those trained elsewhere on such dimensions as course satisfaction, usefulness, and satisfaction with instructor/preceptor.		2. Student course evaluations for multi-site courses to be developed through the student evaluation process and to be used in all sites wherein the curricular component is taught. Items to be so designed as to allow for statistical analysis.

INSTRUCTIONAL GOALS AND OBJECTIVES	INSTRUCTIONAL METHODS	EVALUATION METHODS
IV. HMO EXPERIENCE GOAL (cont'd.)		
Objective 3: For courses taught only at HMO's, students will rate the courses equally or more favorably than comparable courses on such dimensions as importance, satisfaction, and instructor competence.		3. Core evaluation items relating to students' evaluations of courses will be compared statistically to selected courses of similar content.

Resource Paper No. 6

CLINICAL OBJECTIVES FOR A PRIMARY CARE RESIDENCY IN INTERNAL MEDICINE *

1. Interview Objectives
2. Urology Objectives
3. Otorhinolaryngology Objectives
4. Ophthalmology Objectives
5. Orthopedic Objectives
6. General Surgery Objectives
7. Nutrition Objectives
8. Dermatology Objectives
9. Obstetrics/Gynecology Objectives

9A. Bibliography - Obstetrics/Gynecology Objectives

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* From the Harvard University Final Report, December 1975
Project to Develop Curriculum for Physician Training in HMOs

ABBREVIATIONS

AOTIM:	Areas other than internal medicine
TPWBA:	The physician will be able
GASOS:	Given a series of statements
STWAT:	Select those which are true

I. INTERVIEW OBJECTIVES

1. TPWBA to:
   - a. Outline the basic steps and the substeps of conducting a medical interview.
   - b. State the role of non-verbal cues in the medical interview and physical examination.
   - c. Use non-directive questions in the medical interview, as judged by a senior medical observor.
   - d. State the seven general questions that must be asked regarding any symptom.
   - e. Adequately elicit historical information about the present illness, past medical history, family and social history, and the review of systems, as judged by a senior medical observor.
2. Given a common presenting symptom, TPWBA to ask the pertinent applicable questions.
3. TPWBA, as judged by a senior medical observor, to:
   - a. Systematically examine a patient.
   - b. Systematically examine major body regions/systems, appropriately applying the methods of inspection, palpation, percussion and auscultation.
   - c. Demonstrate the ability of applying historical information in performing a more specific physical examination.
   - d. Verbally present a case succintly and well.
   - e. Generate a problem-oriented record.
   - f. Use the commonly accepted classifications of diseases (e.g. the New York Heart classification).

2. UROLOGY OBJECTIVES
Draft #2

1. GASOS about the anatomy and function of the genitourinary system, TPWBA to STWAT.
2. TPWBA to:
   a. Obtain an adequate history referrable to the GU system as part of the general review of systems.
   b. Systematically examine the GU system: the adequacy of which is to be judged by a senior medical observor.
3. TPWBA to:
   a. Adequately perform a urinalysis.
   b. Recognize common abnormalities of the urine sediment.
   c. Adequately collect, examine and properly culture urine specimens suspected of being infected with either bacteria or mycobacteria.
4. GASOS about the following, TPWBA to STWAT:
   a. Proteinuria.
   b. Specific gravity/osmolality of urine.
   c. Urinary electrolytes.
   d. Creatinine clearance.
   e. BUN/creatinine ratios.
   f. Intravenous and retrograde pyelography.
   g. Cystoscopy.
   h. Renal arteriography.
   i. Cystometrograms.
5. GASOS about local/referred pain and gastrointestinal symptomatology of urologic disease, TPWBA to STWAT.
6. TPWBA to:
   a. Describe common irritative genitourinary symptoms and to list their cause(s).
   b. Outline the appropriate evaluation and treatment of irritative urologic symptoms in adults.

c. Describe common obstructive genitourinary symptons and their cause.

d. Outline the appropriate evaluation of obstructive genitourinary symptons in adults.

7. Given a patient with the following symptoms or findings, TPWBA to list the common causes and/or outline the appropriate diagnostic steps:

   a. Hematuria.
   b. Persistent pyuria in men/women.
   c. Incontinence.
   d. Pneumoturia.
   e. Acute scrotal pain.
   f. Urinary retention.
   g. Urethral discharge in men.
   h. Penile chancre or wart.
   i. Hemospermia.

8. TPWBA to describe the clinical features and treatment of:

   a. Acute bacterial prostatitis.
   b. Chronic bacterial prostatitis.
   c. Congestive prostatitis.
   d. Benign prostatic hypertrophy.

9. TPWBA to list the indications for elective prostatectomy.

10. GASOS dealing with the diagnosis and management of the following conditions, TPWBA to STWAT:

    a. Acute and chronic urinary tract infection.
    b. Gonorrhea and lues.
    c. Orchitis/epididymitis.
    d. Hydrocele/varicocele.
    e. Renal/ureteral/bladder stones.
    f. Infertility.
    g. Impotency.
    h. Torsion of the appendix testis.

11. TPWBA to describe the pathophysiology of urolithiasis with regard to the role of:
    a. Stasis.
    b. Infection.
    c. Immobilization
    d. Hypercalcemia.
    e. Hyperuricemia.
12. GASOS about the management of suspected trauma to the genitourinary system, TPWBA to STWAT.
13. GASOS about the following, TPWBA to STWAT:
    a. The clinical courses of carcinoma of the prostate.
    b. The therapy of carcinoma of the prostate.
14. GASOS about the diagnosis and management of neoplasms of the kidneys, bladder and testes, TPWBA to STWAT.
15. GASOS about the medical complications of urologic surgery, TPWBA to STWAT.
16. GASOS about vasectomy, TPWBA to STWAT.
17. TPWBA to suspect or recognize each of the conditions listed below. For each item, the physician will also be able to outline the appropriate therapy:
    a. Testicular swelling.
    b. Epididymal swelling.
    c. Renal carbuncle.
    d. Perinephric abscess.
    e. Prostatic abscess.
    f. Obstruction associated with renal failure or infection.
    g. Paraphimosis.
    h. Torsion of the spermatic cord.

3. OTORHINOLARYNGOLOGY OBJECTIVES
Draft #3

1. Given an unlabelled diagram of the outer, middle and inner ear, as well as the tympanic membrane, TPWBA to label the indicated structures.
2. TPWBA to obtain an adequate history referable to the ear as part of the general review of systems.
3. TPWBA to:
    a. Systematically examine the auricle, auditory canal and typanic membrane.
    b. Recognize perforations of the tympanic membrane.
    c. Distinguish between marginal and central perforations of the tympanic membrane.
    d. Describe the complications which may be seen with either a central or marginal drum perforation.
    e. Accurately record the results of this examination; the adequacy to be judged by a senior medical observor.
4. TPWBA to:
    a. Select for clinical use a tuning fork with an appropriate frequency.
    b. Properly use head mirrors of differing sizes.
    c. Properly use an ear speculum.
    d. Properly use an otoscope including a pneumatic otoscope.
    e. Properly use a cerumen spoon.
    f. List the indications and contraindications for irrigation of the ear.
    g. Irrigate the ear.
    h. Remove foreign bodies from the auditory canal and be able to describe which of these must be referred for therapy.
5. TPWBA to:
    a. Describe the principle of the Weber, Rinne and Schwabach tests and be able to describe the expected findings in each test in conductive and sensorineural hearing loss.

b. List the common causes of conductive and perceptive hearing.

c. GASOS about hearing loss secondary to external ear causes, middle ear causes and cochlear, 8th nerve or central causes, TPWBA to STWAT.

d. GASOS about the effects of hormones, drugs, noise and aging on hearing, TPWBA to STWAT.

6. TPWBA to list the common causes of tinnitus and otalgia. For each cause listed, TPWBA to outline the appropriate therapeutic steps.

7. TPWBA to:

a. Define vertigo.

b. List the common meanings of the term 'dizziness' as used by patients.

c. List a series of questions which serve to distinguish between 'dizziness' and vertigo.

(1) TPWBA to list the common peripheral and central causes of vertigo.

(2) TPWBA to list the characteristics of centrally caused vertigo.

(3) TPWBA to list the characteristics of peripherally caused vertigo.

(4) As part of the assessment of the patient with vertigo, TPWBA to:

(a) Measure the blood pressure in both arms as well as measuring the blood pressure in both the supine and standing positions.

(b) Listen for bruits in the neck and upper chest; look for arrhythmias.

(c) Examine the fundus for the presence of papilledema.

(d) Assess hearing using:

i. a masking maneuver

ii. the Weber and Rinne tests.

(e) Assess cerebellar function by:

i. testing coordination

ii. testing balance using gait and Romberg testing.

(f) Assess nystagmus by:

i. examining for the presence of spontaneous nystagmus.

ii. inducing nystagmus via:

optokinetic testing

positional testing (Nylen-Barany maneuver)

caloric testing.

(g) Describe and elicit cranial nerve signs, brainstem signs and contralateral corticospinal tract signs.

(h) Order the appropriate tests if an acoustic neuroma is suspected.

(5) GASOS about the following causes of vertigo, TPWBA to STWAT:

(a) Dysbaric vertigo.

(b) Otitic vertigo (including perilabyrinthitis)

(c) Hyperventilation-provoked positional vertigo.

(d) hematologic and endocrine associated vertigo.

8. TPWBA to :

a. List those factors which may contribute to the development of otitis externa (O.E.)

b. Describe the signs and symptoms of O.E.

c. List the types of organisms that may cause O.E.

d. Describe the differences between O.E. and otitis media (O.M.).

e. Describe the principles of therapy in O.E.

9. TPWBA to:

a. Describe the signs and symptons of acute O.M.

b. Describe the therapy of acute O.M.

c. Outline the complications of acute O.M.

10. TPWBA to:

a. Describe the signs and symptons of serous O.M. and the factors that may lead to its development.

b. List the diagnostic considerations in serous O.M. in the adult presenting for the first time with unilateral disease.

11. TPWBA to:

a. Recognize and refer patients with chronic otitis media.

b. List the complications of chronic O.M.

12. GASOS about the diagnostic significance of various types of discharge from the ear, TPWBA to STWAT.

13. GASOS about viral and bacterial labyrinthitis, TPWBA to STWAT.

a. TPWBA to describe the fistula test and its significance.

b. GASOS about diffuse and circumscribed bacterial labyrinthitis, TPWBA to STWAT.

c. GASOS about the treatment of labyrinthitis, TPWBA to STWAT.

14. GASOS about the pathologic process, signs and symptoms, and treatment of Meniere's disease, TPWBA to STWAT.

a. TPWBA to define recruitment.

15. GASOS about the clinical findings in acoustic neuroma, TPWBA to STWAT.

16. GASOS about the anatomy and function of the nose, oropharynx, and larynx, TPWBA to STWAT.

17. TPWBA to obtain an adequate history referable to the nose, oropharynx, and larynx as part of the general review of systems.

18. TPWBA to systematically examine the nose, oropharynx, and larynx and to accurately record the results of this examination. The adequacy of this examination and record to be judged by a senior medical observor.

19. TPWBA to:

a. Use nasal speculum.

b. Use silver nitrate sticks.

c. Place an anterior nasal pack.

d. Check for eosinophilia in nasal secretion.

e. Check for glucose in patients with rhinorrhea.

f. Use laryngeal mirror.

g. Use straight and curved bladed laryngoscope.

h. Insert an endotracheal tube.

i. Obtain transtracheal specimen for smear and culture.

j. Perform nasotracheal suction.

k. Perform esophageal intubation.

20. TPWBA to outline the diagnostic steps and management of patients with:

a. Epistaxis.

b. Nasal congestion; nasal obstruction; nasal polyps.

c. Hyposmia, cacosmia, parosmia.

d. Burning of the tongue and mouth.

e. Anterior neck pain.

f. Sore throat.

g. Hoarseness.

h. Salivary gland pain and enlargement.

i. Globus.

21. TPWBA to list the causes of stridor and for each cause state the appropriate treatment.

22. GASOS about common normal and abnormal physical findings or the oropharynx and neck, TPWBA to STWAT.

23. Given a series of culture data from the nose/pharynx, TPWBA to state the appropriate action.

24. GASOS about white or pigmented lesions of the oral cavity, TPWBA to STWAT.

25. TPWBA to outline the therapeutic steps in the management of:

a. Upper respiratory infections.

b. Post nasal drip.

c. Allergic/vasomotor rhinitis.

d. Aphthous stomatitis.

e. Oral thrush.

f. Pharyngitis including monopharyngitis.

g. Peritonsillar cellulitis/abscess.

h. Paratitis.

i. Sialadenitis (including submaxillary gland).

    j. Laryngitis.
    k. Sinusitis (including sphenoid sinusitis. TPWBA also to list the complications of sinusitis.

26. TPWBA to recognize and treat:

    a. Cricoarytenoid arthritis.
    b. Acute epiglottis.
    c. Angioedema.
    d. Café coronary

27. GASOS about tumors of the oropharynx and larynx, TPWBA to STWAT.

28. GASOS about the use of nasal sprays and decongestants, TPWBA to STWAT.

4. OPHTHALMOLOGY OBJECTIVES
Draft #4

1. Given the following unlabeled diagrams, TPWBA to label the indicated structures:
   - a. Sagittal cross-section of the eye.
   - b. The eyelids and lacrimal glands.
2. TPWBA to:
   - a. Obtain an adequate history referable to the eye as part of the general review of systems.
   - b. Accurately record the results of the eye history and examination. The adequacy of this record and examination to be judged by a senior medical observor.
3. TPWBA to:
   - a. Correctly locate opacities or lesions located in the cornea, lens, vitreous or fundus.
   - b. List the systematically examine the structures to be examined during fundoscopy.
   - c. GASOS or fundoscopic pictures about normal and abnormal findings of the disc, retinal blood vessels, general fundus background and macula, TPWBA to identify the true statements or recognize the condition presented.
4. TPWBA to:
   - a. Determine visual acuity using either the standard or pocket Snellen chart.
   - b. To check gross visual acuity via pinhole sight.
   - c. Examine visual fields by gross confrontation.
   - d. Test for color vision.
   - e. Use a Schiotz tonometer and list the indications and contraindications for its use.
   - f. Use a slit lamp for examination of the anterior chamber.
     - (1) Use oblique illumination for detection of corneal abrasion.

g. Remove foreign bodies from the lids or bulbar conjunctiva.

h. Apply an eye patch.

i. Use sterile fluorescein strips for examination of the cornea.

j. Do schirmer test.

k. Obtain specimens from the conjunctiva for smear and culture.

5. Given a patient who complains of a red eye, TPWBA to list and recognize those characteristics which distinguish these conditions:

   a. Conjunctivitis.

   b. Iritis.

   c. Acute glaucoma.

   d. Corneal infection or trauma.

   For each condition, TPWBA to outline the appropriate therapeutic steps.

6. For each sign or symptom listed below, TPWBA to:

   a. List the common causes of each sign/symptom

   b. State the appropriate followup questions.

   c. Outline the needed diagnostic studies.

   d. Indicate which conditions require referral to an ophthalmologist.

   e. Outline a treatment plan for the remaining conditions;

      (1) Subnormal visual acuity.

      (2) Pain or discomfort of the eye.

      (3) Change of appearance of lids, orbit or eye.

      (4) Diplopia.

      (5) Discharge from the eye.

      (6) Increase or decrease of eye secretions.

7. GASOS about the effects of aging on the eye, TPWBA to STWAT.

8. TPWBA to:

   a. GASOS about common abnormalities of the eyelids or conjunctiva, STWAT.

      The physician will also be able to indicate which of these conditions require referral to an ophthalmologist and be able to outline the treatment for the remaining conditions.

b. Given a patient suspected of having a corneal foreign body or abrasion, TPWBA to:

  (1) Measure visual acuity as the initial step.

  (2) Outline the diagnostic steps to be used.

  (3) Describe the treatment.

  (4) Recognize the early corneal infection and immediately refer patient to an ophthalmologist.

c. TPWBA to provide emergency treatment of alkali and acid induced conjunctivitis/keratitis.

d. TPWBA to outline the emergency treatment of corneal or scleral laceration.

9. TPWBA to recognize the following conditions and take the appropriate action:

  a. Herpetic keratitis.

  b. Corneal ulcers (especially due to pseudomonas).

  c. Orbital cellulitis.

  d. Central retinal artery occlusion.

  e. Chronic glaucoma (acute and chronic - see obj. #5)

  f. Vitreous hemorrhage.

  g. Sympathetic ophthalmia.

  h. Unilateral exophthalmous of recent origin.

10. TPWBA to recognize and grade the fundoscopic abnormalities of:

  a. Arteriosclerosis.

  b. Increased blood pressure (including malignant high blood pressure).

  c. Diabetes.

11. GASOS or pictures referring to the ocular manifestations of systemic diseases, the physician will be able to select those which are true or correctly identify the pictures.

12. TPWBA to:

  a. List the commonly used mydriatics and their side effects.

  b. State when a pupil should or should not be dilated.

  c. Estimate the depth of the anterior chamber by oblique illumination.

13. GASOS about the following, TPWBA to STWAT:
    - a. Cycloplegics
    - b. Drug therapy of glaucoma, especially interaction with other drugs.
14. TPWBA to:
    - a. List the indications and contraindications for the use of topical ocular steroids.
    - b. List the complications that may occur with the use of ocular steroids.
15. GASOS about the following, TPWBA to STWAT:
    - a. The use of topical ocular anesthetics.
    - b. Diagnostic dye solution.
    - c. Lubricating agents.
16. GASOS about commonly used topical ocular antibiotic preparations, TPWBA to STWAT.

NEURO-OPHTHALMOLOGY OBJECTIVES

17. GASOS about the optic nerve and visual pathway, TPWBA to STWAT.
18. GASOS involving the optic nerve or tract, TPWBA to describe the resulting visual field deficit.
19. TPWBA to recognize optic neuritis.
    - a. GASOS about the etiology, clinical findings and treatment of optic neuritis, TPWBA to STWAT.
20. TPWBA to recognize papilledema and list the common causes thereof.
21. TPWBA to recognize optic atrophy and list the common causes thereof.
22. GASOS about the following pupillary abnormalities, TPWBA to STWAT:
    - a. Argyll Robertson
    - b. Tonic
    - c. Horner's syndrome.
    - d. Anisocoria.
    - e. Intracranial hemorrhage (thalamic, cortical, cerebellum, pons).
23. GASOS about gaze palsies, TPWBA to STWAT. (frontal, occipital,lesions, brainstem).

a. TPWBA to recognize oculogyric crisis.

24. TPWBA to clinically recognize paralysis of: oculomotor, trochlear or abducens nerve.

    a. GASOS about the causes of paralysis of the oculomotor, trochlear, and abducens nerves, TPWBA to STWAT.

25. TPWBA to list three types of nystagmus which may be normally elicited.

    a. GASOS about pathologic nystagmus, TPWBA to STWAT.

26. TPWBA to define amaurosis fugax.

    a. GASOS about the etiology and treatment of those conditions associated with amaurosis fugax, TPWBA to STWAT.

27. TPWBA to recognize subhyaloid hemorrhage and state the significance of their findings.

28. GASOS about the phaeomatoses, TPWBA to STWAT.

29. GASOS about toxic/nutritional amblyopias, TPWBA to STWAT.

30. GASOS about the ophthalmologic findings in migraine and related headaches, TPWBA to STWAT.

    (blurred vision, scintillating scotomata, homonymous hemianopsia).

5. ORTHOPEDIC OBJECTIVES
Draft #5

1. Given a patient with a musculoskeletal disorder, TPWBA to elicit an appropriate history and perform a systematic physical examination.
2. TPWBA to:
    a. Measure and record joint motion using the American Academy of Orthopedic Surgeon's criteria.
    b. State the normal range of joint motion of spine, shoulders, elbows, wrists, MCP's, hips, knees, and ankles.
    c. Identify weakness in a major muscle group.
3. GASOS about the following, TPWBA to STWAT:
    a. The normal and pathologic anatomy of the vertebral column and large joint.
    b. Normal synovial fluid.
    c. The synovial fluid in inflammatory, infectious, degenerative and traumatic conditions.
    d. The natural history of a healing fracture, bone, ligament, and tendon injury.
    e. The factors influencing the healing processes of bone, ligaments, and tendons.
4. Given a list of major peripheral nerves, TPWBA to describe the associated sensory and motor distribution.
5. Given a series of major spinal nerve roots, TPWBA to describe the associated dermatome.
6. TPWBA to:
    a. Aspirate knees and bursae.
    b. Apply finger, writs, elbow, ankle, and cock-up splints.
    c. Apply a sling to the upper extremity and/or sling/swarth.
    d. Inject bursae and tendons, exclusive of hip.

e. Collect properly and analyze joint fluid appropriately using gross and microscopic techniques.

f. Interpret bone films of the extremities for fractures, localized demineralization, subperiosteal resorption, cortical erosion, cysts, osteophytes, and normal distribution of sesamoids, common anatomic variants, epiphyses (especially epiphyseal fracture).

g. Identify common radiologic anatomic variants.

h. Identify epiphyseal fractures.

i. Stabilize fractures to permit safe transport.

j. Perform a digital nerve block.

7. TPWBA to:

a. Diagnose and treat ligamentous and muscular strains of the low back.

b. Describe and elicit findings in L3-4, L4-5, L5-S1 disc syndromes.

c. State when acute disc herniation represents a surgical emergency.

d. List the causes for low back pain other than muscle strain and disc disease.

8. TPWBA to:

a. Clinically distinguish bursitis from arthritis.

b. Recognize olecranon and prepatellar bursitis.

9. For each condition listed below, TPWBA to take the appropriate measures as defined.

MAJOR HEADINGS	Diagnose Only (treatment may not be needed)	Diagnose/Treat	Diagnose/Refer
Neck, Shoulder, &Jaw			
Torticollis		X	
Cervical root syndrome		X	
Cervical disc			X
Thoracic outlet syndrome			X
Subacromial bursitis		X	
Bicipital tenosynovitis		X	

MAJOR HEADINGS	Diagnose Only (treatment may not be needed)	Diagnose/Treat	Diagnose/Refer
Frozen shoulder		X	
Cuff/supra spinatus tears			X
Biceps brachii rupture			X
Shoulder dislocation-anterior			X
Shoulder dislocation posterior			X
Acromio & sternoclavicular dislocation			X
Snapping jaw	X		
Dislocation jaw			X
Elbow, Wrist, & Hand			
Dupuytren's contraction (early)			X
Ganglion			X
Felon (Whitlow) including herpetic infection		X	
Paronychia		X	
Traumatic wrist injury			X
Sprain & dislocation, PIP, DIP's		X --------→	X (if not easily reduced)
Subluxation, dislocation thumb and MCP's			X
Carpal tunnel syndrome		X --------→	X
Calcific degenerative and inflammatory disorders of the wrist			X
Tenosynovitis, suppurative			X
Trigger finger		X	
de Quervain's tenosynovitis		X --------→	X (for recurrence)
Traumatic tenosynovitis		X	

MAJOR HEADINGS	Diagnose Only (treatment may not be needed)	Diagnose/Treat	Diagnose/Ref
Mallet finger, Boutonniere deformity, profundus tear			X
Tendon lacerations			X
Olecranon bursitis		X	
Tennis elbow (epicondylitis)		X	
Stiff elbow		X	
Ulnar nerve contusion			X
Forearm contusion		X	
Spine, Thorax			
Pectus carinatum	X		
Pectus excavatum	X		
Tietze's syndrome		X	
Costocartilage separatus		X	
Fractured ribs		X	
Acute lumbo-sacral strain		X	
Scoliosis	X ----------	----------	---→ X (if severe)
Low back syndrome		X	
Hip			
Aseptic necrosis			X
Trochanteric (deep and superficial) bursitis		X	
Fractures of the hip			X
Slipped capital femoral epiphysis			X
Knee			
Derangement of medical lateral menisci		X ----------	---→ X

MAJOR HEADINGS	Diagnose Only (treatment may not be needed)	Diagnose/Treat	Diagnose/Refer
Injury of collateral/ cruciate ligaments		X →	X (if instability present)
Referred pain syndrome involving the knee			X
Quadriceps/patellar ligament rupture			X
Chondromalacia	X		
Osteochondritis dessicans			X
Subluxing, dislocating patella			X
Bursitis around knee	X		
Popliteal cyst	X →	→	X (if symptomatic or enlarged)
Ankle, Foot			
Flat feet		X	
Sprain ankle		X	
Cavus feet		X(possibly)	
Metatarsalgia		X	
Plantar neuroma			X
Peroneal spastic flat foot			X
March fracture		X	
Hallux valgus	X →	→	X (if severe symptoms)
Hallux rigidus			X
Hammer toe	X →	→	X (if severe symptoms)
Achilles tenosynovitis		X	
Achilles bursitis		X	
Plantar fasciitis		X	

MAJOR HEADINGS	Diagnose Only (treatment may not be needed)	Diagnose/Treat	Diagnose/Re
Plantar wart		X→	X
Plantar keratosis		X→	X
Achilles rupture			X
Plantaris & gastrocnemius ruptures			X

10. TPWBA to:

    a. Define osteoporosis.

    b. List the causes of generalized osteoporosis.

    c. GASOS about the clinical features and management of osteoporosis, TPWBA to STWAT.

    d. Diagnose and manage osteoporotic vertebral collapse.

11. GASOS about the clinical findings, complications and treatment of Paget's disease, TPWBA to STWAT.

12. TPWBA to:

    a. Define osteomalacia.

    b. List the causes of osteomalacia as well as the general principles of treatment.

13. GASOS about the pathophysiology, clinical symptoms, and treatment of fat embolism, TPWBA to STWAT.

6.

GENERAL SURGERY OBJECTIVES
Draft #2

I. General

1. GASOS about the natural history of wound healing, TPWBA to STWAT.
    a. GASOS about the adverse effects of various local and systemic factors on wound healing, TPWBA to STWAT.
2. GASOS about antiseptic principles (including topical antiseptics, wound cleansing, prophylactic antibiotics and bowel preparation), TPWBA to STWAT.
    a. The physician will demonstrate adequate antiseptic technique in the management of a skin wound, the adequacy judged by a senior medical observor.
3. GASOS about wound infections and the infections associated with localized pathology (e.g. cholecystitis, diverticulitis, skin infection etc.) including regional and systemic differences in flora, TPWBA to STWAT.
    a. TPWBA to outline a rational approach to the treatment of infection associated with G.I., G.U. and Gyn pathology.
4. GASOS about the natural history of thermal, electrical and chemical burns, TPWBA to STWAT.
5. GASOS about the indications and use of tetanus prophylaxis, TPWBA to STWAT.

II. Techniques: The physician will demonstrate technical competency, as judged by a senior surgical observor, in the following areas:

1. Incision and drainage of a skin abscess, including the application of wicks to enhance drainage.
    a. Techniques of wound culture.
    b. Selection of appropriate methods of culture.
2. Suturing of lacerations of the skin, excluding certain lesions of the face (especially around the mouth and eyes) and situations in which tendons, nerves and arteries are involved.

   a. TPWBA to describe those injuries which are at risk to heal with a cosmetically deleterious scar and hence need specialized treatment from the outset (e.g. lesions about the mouth and eyes, flap and stellate lesions, etc.).

   b. TPWBA to recognize wounds that may be associated with tendon injury.

3. Application of dressings that are protective and secure.

4. The selection, use, and potential complications of local anesthetics.

   a. TPWBA to administer a digital block.

5. Excision biopsy of skin lesions, not on the face, and less than 1 cm in diameter. TPWBA to effect hemostasis in such cases.

   a. TPWBA to describe an adequate preparation for a sigmoidoscopy.

   b. The physician will demonstrate proficiency in the examination and the description of normal and abnormal findings as judged by a senior medical observor.

   c. TPWBA to list the indications for biopsy through the sigmoidoscope, the techniques for biopsy, the steps in handling materials, and the post biopsy precautions to be taken.

III. Management

1. TPWBA to state the principles involved in and techniques required in the management of:

   a. Skin infections: cellulitis, furuncle, abscesses.

   b. Felons and paronychia (including herpetic whitlow).

   c. Ingrown toenail.

   d. Pilonidal cyst abscess.

   e. Human and animal bites.

   f. Management of clean and dirty, new and old skin wounds.

      (1) GASOS about the use of antibiotics in the management of skin wounds, TPWBA to STWAT.

g. Excision of papillomata, sebaceous cysts and other benign skin lesions.

h. First degree and second degree burns of the skin, involving less than 3% of the body surface. TPWBA to describe the principles of clinical staging of a burn.

i. Hemorrhoids.

j. Stasis dermatitis.

k. Splinters and small cut, foreign body.

l. Fish hooks.

m. Puncture wounds.

COLLABORATIVE MANAGEMENT

Many of the conditions cited in the following sections involve collaborative medical management. Since the conditions generally present to, or are detected by the primary physician, an interface must be defined. Another very important objective for the primary physician in this collaboration is summarized in this very important objective: given a list of the 10 most commonly performed surgical procedures, TPWBA to outline the physiologic consequences of the operation and the recovery phases postoperatively, including complications (early and late).

I. Breast Masses

1. The physician will demonstrate a systematic approach to breast examination as judged by a senior surgical observor.

2. GASOS about the efficacy and applications of the findings from mammography (including thermography and xeroradiography), TPWBA to STWAT.

    a. TPWBA to describe the appropriate action to be taken based on the results of mammography.

3. GASOS about screening for breast cancer (including high risk groups, self examination, periodic examination, mammographic techniques), TPWBA to STWAT.

4. Given a patient with a breast mass (discovered on physical examination or mammography), TPWBA to outline:
    a. A differential diagnosis based on age, sex, size, and the presence of other features (pain, inflammatory indices, cyclicity, bloody discharge, etc.).
    b. TPWBA to perform a needle aspiration of isolated breast lesions.
    c. TPWBA to select those patients who are cancer suspects and should have surgical biopsy.
    d. TPWBA to outline the appropriate follow-up procedure for patients with breast abscess, cystic hyperplasia, intraductal papilloma and fibroadenomata.
5. GASOS about the presenting features, differential diagnosis and appropriate treatment of Paget's disease of the breast, TPWBA to STWAT.

II. Thyroid Disorders

1. The physician will demonstrate an adequate systematic examination of the thyroid gland and associated lymph nodes, as judged by a senior observor.
2. Given a patient with one or more thyroid nodules or goiter, TPWBA to list those epidemiologic, physical exam, historic and laboratory features which favor each of the following diagnoses:
    a. Adenomatous goiter.
    b. Thyroid cancer.
    c. Medullary thyroid cancer.
    d. Thyroiditis - acute, chronic.
3. For each of the conditions cited in "2", TPWBA to list the appropriate management steps.
4. Thyroid function tests, pharmacology, Graves Disease: see medical objectives

III. Esophagus

1. Given a series of patients with dysphagia or regurgitation, TPWBA to list

the epidemiologic, historic, physical and radiographic features which favor:

- a. Achalasia.
- b. Diffuse spasm.
- c. Benign stricture.
- d. Tumors.
- e. Diverticula.

2. Given a series of radiographs illustrating the above conditions, TPWBA to correctly identify them.
3. For each of the conditions sited in "1", TPWBA to list the appropriate management steps.
4. Esophagoscopy-Motility studies: see medical objectives
5. GASOS about the anatomic and physiologic relationships in hiatus hernia, TPWBA to STWAT.
    - a. GASOS about the clinical and x-ray features of hiatus hernia, TPWBA to STWAT.
    - b. TPWBA to outline the steps in management of hiatus hernia, including indications for surgery.
    - c. TPWBA to list the major complications of hiatus hernia along with their clinical features.
6. TPWBA to list the presenting features and diagnostic steps in Mallory-Weiss and Boerhaave's syndrome.

IV. Stomach and Duodenum

1. GASOS about gastric acid secretion including endogenous stimuli and exogenous stimuli (including test drugs), TPWBA to STWAT.
2. TPWBA to list the indications for gastric secretory testing.
3. TPWBA to list the steps in gastric secretory testing, pass a naso-gastric tube, and collect samples for analysis.

4. Given several sets of data from gastric secretory testing, TPWBA to correctly interpret them.
5. TPWBA to list the epidemiologic, historic, physical exam, laboratory and radiographic features of peptic ulcers (duodenal and gastric), malignant gastric ulcers, acute and chronic gastritis.
6. Given a series of radiographs illustrating the disorders listed in "5", TPWBA to correctly identify them.
7. Given a patient with a gastric ulcer, TPWBA to list those features which distinguish benign from malignant.
   a. TPWBA to describe the role of each of the following in evaluation of a gastric ulcer:
      (1) secretory testing
      (2) cytologic study of washings.
      (3) endoscopy (with biopsy)
      (4) radiography
      (5) A therapeutic trial for healing.
   b. TPWBA to outline the indications for and elements of a therapeutic trial for healing of a gastric ulcer.
8. Given a patient with a duodenal ulcer, TPWBA to outline an effective therapeutic program.
9. For benign gastric and duodenal ulcers, TPWBA to list the indications for surgery.
   a. TPWBA to describe the physiologic objectives for the various operative procedures for ulcer, as well as their indications, success rates, and relative risk (short and long term).
10. For benign gastric and duodenal ulcers, TPWBA to list the major complications.
11. TPWBA to list the major historic, clinical radiographic and laboratory tests which suggest Zollinger-Ellison syndrome.

12. TPWBA to list the major features of the following post-gastrectomy syndromes, as well as management steps:
    - a. Dumping syndrome.
    - b. Nutritional disturbances
        - (1) megaloblastic anemia
        - (2) iron deficiency
        - (3) calcium deficiency
        - (4) steatorrhea
    - c. Diarrhea
    - d. Marginal ulcer.
13. See also section on Acute Abdomen and G.I. Hemorrhage.

V. Small Intestine

1. Obstruction - see section on bowel obstruction.
2. RE - see medicine
3. Carcinoid Syndrome - see medicine
4. GASOS about the incidence, nature, and presenting features of small bowel tumors, TPWBA to STWAT.
5. Appendicitis.
6. GASOS about the clinical features of occlusive and non-occlusive vascular disease of the bowel, TPWBA to STWAT.

VI. Colon

1. Ulcerative colitis - see medicine
2. Diverticulosis
    - a. GASOS about the physiologic basis of diverticulum formation in the colon, TPWBA to STWAT.
    - b. GASOS about the effects of diet on the formation of diverticulae, and diet therapy in the treatment of diverticulitis, TPWBA to STWAT.
    - c. GASOS about the presenting symptons of diverticuli, TPWBA to STWAT.

   d. TPWBA to outline the steps in the medical management of acute diverticulitis.

   e. TPWBA to describe the indications for surgery in diverticulitis.

3. Radiation Proctitis

   a. TPWBA to list the settings in which radiation proctitis occurs, the effects of radiation on the rectum, and the steps in the management of radiation proctitis.

4. Villous Adenoma

   a. GASOS about the epidemiology of, the presenting symptons and syndromes of, the diagnosis and management of villous adenoma, TPWBA to STWAT.

5. Cancer of the Colon

   a. GASOS about the epidemiology of and location of colonic cancers, TPWBA to STWAT.

   b. GASOS about the efficacy of stool examinations for occult blood, routine rectal examinations, routine proctoscopic examination and serologic studies in the early detection of cancer of the colon, TPWBA to STWAT.

   c. GASOS about presenting symptons of colonic cancer and especially the relation of symptons to location of the tumor, TPWBA to STWAT.

   d. TPWBA to outline the diagnostic steps in a lesion suspected of being carcinoma of the colon.

6. Polyps

   a. GASOS about the epidemiologic, location and morphology of colonic polyps, TPWBA to STWAT.

   b. GASOS about the presenting symptons in colonic polyps, TPWBA to STWAT.

   c. GASOS about the malignant potential of colonic polyps, TPWBA to STWAT.

   d. TPWBA to list the steps in management (indications for surgery) of:

      (1) polyps less than 25 cm from the anus

      (2) polyps elsewhere in the colon.

e. GASOS about the genetics, presenting symptoms, and management of familial polyposis, TPWBA to STWAT.

7. Hemorrhoids

a. TPWBA to describe the process of hemorrhoid formation and the structures involved.

b. TPWBA to describe the diet management of a patient with hemorrhoids.

c. Stool softness - see medicine

d. TPWBA to describe the topical therapy of hemorrhoids and its indications.

e. GASOS about the indications for injection therapy and resection of hemorrhoids, TPWBA to STWAT.

f. TPWBA to describe an acute external hemorrhoidal thrombosis, and will be able to describe the steps in management.

(1) TPWBA to do an external hemorrhoidal thrombectomy.

8. Anal Fissure, Fistula, and Papillitis

a. GASOS about the presenting symptoms, physical findings, and medical management of anal fissures, fistula and papillitis, TPWBA to STWAT.

b. TPWBA to list conditions which may present as fissures or fistulae in ano.

VII. Liver

1. Portal hypertension, varices, ascites.

2. Jaundice "medicine vs. surgery".

VIII. Gall bladder and ducts.

1. Oral and IV Cholangiography.

2. Gallstones.

3. Cholecystitis, cholangitis.

IX. Pancreas

1. Acute pancreatitis (see medicine)

2. Chronic pancreatitis.

3. Cysts.

4. Tumors (carcinoma) for endocrine (see medicine).

X. Spleen
   1. Rupture.
   2. Splenectomy for hematologic disease.

XI. Hernias

XII. Veins
   1. Thrombosis
   2. Varicose Veins
   3. Varicose ulcers

XIII. Arteries
   1. Dissection of aorta
   2. Aneurysms.

XIV. Lungs
   1. Bronchoscopy
   2. Tracheostomy
   3. Pneumothorax
   4. Carcinoma lung
   5. Work-up of coin lesion.
   6. Scalene biopsy.

XV. Acute Abdomen
   1. TPWBA to obtain an accurate historical data base from a patient with an acute abdomen, including the description of pain, relevant GU and Gyn history, past GI history, vomiting etc., as judged by a senior medical observor.
   2. Given a series of descriptions of pain patterns, TPWBA to describe the likely underlying mechanisms.
   3. TPWBA to satisfactorily examine an abdomen including the palpation of organs, percussion, detection of peritoneal signs, and auscultation of bowel sounds.
      a. TPWBA to accurately describe these findings as judged by a senior observor.

4. GASOS about the following laboratory tests and their association with various acute abdominal emergencies, TPWBA to STWAT:
   a. Hct.
   b. WBC, Differential
   c. Urinalysis.
   d. KUB and Upright.
   e. Amylase
   f. Wood light exam of the urine.
5. Given a series of KUB's from patients with acute abdomens, TPWBA to accurately identify disturbed patterns and match these patterns to likely etiologies.
6. Given the following list of common causes of the acute abdomen, TPWBA to describe the characteristic findings to be expected in each item of data base:

Causes

Perforated peptic ulcer
Acute cholecystitis
Acute pancreatitis
Acute appendicitis
Acute diverticulitis
Acute gynecologic disease
(ruptured ovarian cyst,
ruptured ectopic prenancy)
Acute small & large bowel obstruction
Acute renal or ureteral colic

Data Base Item

Pain pattern
Past clinical history
age, sex
vomiting
bowels
menstrual history
physical exam
KUB, upright
Urinalysis
Hemogram
Amylase

XVI. Upper Gastrointestinal hemorrhage

1. TPWBA to list the common causes of upper GI hemorrhage in rank order of relative frequency.

2. For each of the common causes described in XVI-1, TPWBA to state the features of history and physical examination that favor that diagnosis.
3. For each of the diagnostic studied listed, TPWBA to describe its role in the diagnosis of upper GI bleeding.
   a. Gastric intubation.
   b. BSP
   c. NH_3 level
   d. Barium fluoroscopy
   e. Esophago-gastroscopy
   f. Selective angiography
   g. Balloon tamponade
4. Assessment of blood loss
   a. TPWBA to describe the use of the following signs in assessing the volume of blood loss.
      (1) skin color
      (2) pulse
      (3) BP recumbent and upright
      (4) CVP
      (5) urine output
      (6) stool volume and appearance.
5. The physician will construct a skeleton chart indicating the parameters to be followed in managing the bleeding patient, and the desired frequency of observation.
6. GASOS about the objectives of transfusion therapy, and parameters in XVI-5 that effect the rate of transfusion, TPWBA to STWAT.
7. GASOS about the application techniques and complications of the following methods used in the control of GI hemorrhage, TPWBA to STWAT.
   a. Balloon tamponade.

b. Saline lavage

c. Antacid therapy

d. Pitressin infusion

8. GASOS about the role of the following factors in the decision for surgical intervention, TPWBA to STWAT.

a. Patient's age

b. Patient's diagnosis

c. Rate of blood loss and magnitude of blood loss

d. Availability of compatible blood.

e. Other illness.

f. First bleed vs. re-bleed.

XVII. Lower Gastrointestinal Hemorrhage

7. NUTRITION OBJECTIVES
Draft #1

1. GASOS about the digestion, absorption, and intermediary metabolism of protein, carbohydrate and fat, TPWBA to STWAT.
2. GASOS about basic adult nutritional requirements, TPWBA to STWAT.
3. TPWBA to elicit a screening nutritional history.
4. GASOS about the physical findings in states of altered nutrition, TPWBA to STWAT.
5. TPWBA to describe the major types of secondary or conditioned malnutrition and outline the principles of therapy for each.
6. Given a list of drugs that may induce nutrient deficiencies, TPWBA:
    a. To describe the mechanisms involved, and
    b. Describe the clinical effects that may result.
7. TPWBA to describe the limitations of short term intravenous feedings in providing total nutritional support.
8. TPWBA to:
    a. List the indications for total parenteral nutritional support.
    b. Correctly order hyperalimentation solutions.
    c. Describe and manage the complications/side effects of hyperalimentation.
9. GASOS about hypervitaminosis A and D, TPWBA to STWAT.
10. GASOS about the effects of malnutrition on infection and wound healing, TPWBA to STWAT.
11. GASOS about diseases caused by deficiencies of individual nutrients and vitamins, TPWBA to STWAT.
12. GASOS about macroelement and trace element deficiencies and excesses, TPWBA to STWAT, and be able to describe the steps in the management of each condition.
13. GASOS about tube feedings, TPWBA to STWAT.
14. TPWBA to provide dietary counseling in the management of:
    a. Diabetes mellitus

b. Hypercholesterolemia and hyperlipoproteinemia.

c. Renal failure.

d. Hepatic failure.

e. Congestive heart failure.

f. obesity.

8. DERMATOLOGY OBJECTIVES
Draft #5

1. TPWBA to:
    a. Elicit a history and perform a systemic examination in patients who present with skin problems. The adequacy of this examination to be judged by a senior medical observor.
    b. Recognize benign lesions which do not require treatment found during the routine physical examination of the skin.
    c. Describe the principle types of skin lesions morphologically and pathophysiologically, and be able to distinguish primary from secondary (excoriation) patterns.
    d. Describe skin lesions in terms of:
        (1) shape
        (2) arrangement
        (3) distribution
2. TPWBA to:
    a. Use in examination of the skin a magnifying glass, glass slide (diascopy) and cross illumination.
    b. State the use of the drakfield examination.
    c. Collect, prepare and examine scrapings from suspected fungal lesions.
    d. Use and interpret findings from Wood's light examination.
    e. Adequately sample lesions for bacterial and fungal cultures.
    f. Biopsy skin with a punch biopsy.
    g. Examine smears cytologically from lesions suspected of being:
        (1) herpes simplex/varicella/zoster
        (2) bullous eruptions.
    h. State the application and indications of patch testing in the work-up of contact dermatitis.

i. State the uses of ultraviolet light in dermatologic therapy and to be able to advise in their proper use.

j. Curet skin lesions.

k. Use electrosurgical units as well as cryotherapy.

3. TPWBA to state the differential diagnosis and steps in the assessment and treatment of the following conditions:

   a. Dry skin, acquired icthyosis vulgaris.

   b. Burns, including sun reaction.

   c. Urticaria

      (1) GASOS about the pathophysiology of urticaria, TPWBA to STWAT.

      (2) TPWBA to list the common causes of urticaria.

         (a) For each cause listed, TPWBA to:

            (i) state the elements of history and laboratory exam which support that diagnosis.

            (ii) state the appropriate therapeutic steps.

   d. Pruritis

      (1) GASOS about the pathophysiology of pruritis, TPWBA to STWAT.

      (2) The physician will list those systemic illnesses which may present with pruritis.

      (3) From a list of common dermatoses, TPWBA to select those in which pruritis is commonly present and those which are obligate "itchers".

      (4) TPWBA to outline the appropriate therapeutic steps in the management of pruritis.

   e. Hyperhidrosis

   f. Hyper-, Hypopigmentation

   g. Alopecia

      (1) GASOS about the normal physiology of hair growth and effects of various physiologic events on this growth, TPWBA to STWAT.

(2) TPWBA to describe the clinical manifestations and significance of: male pattern baldness, baldness associated with cutaneous infection and other skin diseases, alopecia areata, trichotillomania, female pattern baldness, scarring and non-scarring alopecia.

(3) TPWBA to describe, for the above named conditions, the appropriate therapeutic steps.

h. Hirsutism vs. Virilism

i. Stomatitis

j. Commonly encountered nail changes

4. TPWBA to identify the following disorders from a mixed graphic presentation or patient population, and will be able to outline a diagnostic and treatment plan consistent with those described in the Manual of Dermatologic Therapeutics.

a. Disorders of epidermal proliferation

(1) psoriasis

(2) pityriasis rosea

(3) seborrheic dermatitis

b. Sebaceous, eccrine, apocrine glands

(1) acne vulgaris

(2) miliaria

(3) hidradenitis suppurativa

(4) acne rosacea

c. Bullous disorders

(1) E. multiforme

(2) Herpetiformis

(3) Pemphigoid

d. Eczematous dermatoses

(1) allergic contact

(2) atopic

(3) mummular eczema

  - (4) dyshidrotic eczema
  - (5) stasis dermatitis
  - (6) lichen simplex chronicus
- e. Primary disorders of skin and mucosa
  - (1) aphthous ulcers
  - (2) granuloma annulare
- f. Disorders due to physical and chemical agents.
  - (1) thermal burns
  - (2) sunburn
  - (3) phototoxic and photoallergic reactions
  - (4) frostbite
- g. Disorders due to microbial agents
  - (1) impetigo, ecthyma
  - (2) folliculitis - carbuncle - cellulitis - erysipelas
  - (3) erythrasma
  - (4) candidiasis
  - (5) fungal infection (dermatophytic, sporatric, etc.)
  - (6) T. versicolor
  - (7) H. simplex
  - (8) H. zoster
  - (9) molluscum contagiosum
  - (10) verrucae c. accuminatum
  - (11) rocky mountain spotted fever
- h. Diseases due to arthopods
  - (1) mites - scabies
  - (2) lice
  - (3) insect bites
- i. Corns and calluses

5. GASOS about the pathophysiology and clinical characteristics of malignant pigmented skin lesions, TPWBA to STWAT.
    a. Given a brown or black pigmented skin lesion, TPWBA to recognize those characteristics of color, shape, and topography which may indicate malignant change.
    b. Given a brown or black pigmented skin lesion, TPWBA to refer for treatment those pigmented lesions suspected of being malignant.
    c. GASOS about the clinical epidemiology of pre-cancerous skin lesions, TPWBA to STWAT.
        (1) GASOS about the clinicopathologic correlations in pre-cancerous skin lesions and early squamous cell carcinoma, TPWBA to STWAT.
        (2) Given a series of photographs and case material demonstrating skin lesions which may be malignant, TPWBA to select those which should be referred for biopsy.
    d. GASOS about clinicopathologic correlations in basal cell carcinoma, TPWBA to STWAT.

6. TPWBA to diagnose and manage those treatable diseases which cause acute febrile illnesses associated with a rash.
    a. TPWBA to identify from graphic material and/or patient presentations the following dermatologic manifestations of systemic infection, or will be able to describe the necessary diagnostic steps required to differentiate among diseases having similar skin lesions:
        (1) Rocky Mountain spotted fever (differential diagnosis to include meningococcemia and measles).
        (2) Viral exanthems (macules, papules, vesicles, pustules or petechiae) with the differential diagnosis to include the following categories:
            (a) Petechiae: meningococcemia, bacterial endocarditis, rickettsioses, drug eruptions, any severe sepsis, many enteric viruses, hematologic disorders.

        (b) Macules: typhoid fever, scarlet fever, drug eruption, infectious hepatitis, infectious mononucleosis, rubella.

        (c) Papules: syphilis, drug eruption, rubeola rubella, many enteric viruses.

        (d) Vesicles or pustules: staphylococcemia, gonococcemia, rickettsialpox, drug eruption, zoster, varicella, herpes simplex, vaccinia, many enteric viruses.

    (3) Using the categories in (2) on the previous page, characteristic morphology and distribution of lesions and epidemiologic data obtained from the patient or patient's family, TPWBA to select those statements which correctly identify:

        (a) Hand-foot-mouth Disease

        (b) Herpes simplex

        (c) Herpes zoster

        (d) Varicella

    (4) Molluscum contagiosum

7. TPWBA to list the most common morphologic patterns that may be seen in drug eruptions. (exantham, urticaria, eczematous lesions, photosensitivity reaction, purpuric)

    a. Given a list of commonly used drugs, TPWBA to describe the common type(s) of drug eruption(s) that each may produce.

    b. TPWBA to recognize and state the significance of the following lesions:

        (1) splinter hemorrhages of nails, osler's nodes, janeway's lesions, tender subcutaneous nodules, cutaneous infarcts, nodose lesions.

        (2) ecthyma gangrenosa

        (3) scarlitiniform eruptions in patients with pharyngitis.

        (4) palpable purpura

    c. TPWBA to clinically distinguish a purpuric lesion from telangiectatic lesions.

(1) TPWBA to recognize and state the significance of the following types of purpuric lesions:

(a) petechiae on mucosal membranes

(b) purulent purpura

(c) purpura fulminans

(d) palpable purpura

(e) psychogenic purpura

(f) eyelid purpura (facial/upper torso)

(g) perifollicular purpura

(h) progressive pigmentary purpura

(i) pinch purpura

d. Given a list of skin lesions that may be associated with malignant disease, TPWBA to describe each lesion and state the associated tumor(s).

e. TPWBA to describe and recognize the skin manifestations of rheumatic fever.

f. TPWBA to list those disorders associated with:

(1) focal cutaneous hyper and hypopigmentation

(2) generalized cutaneous hyper and hypopigmentation

(3) palmar erythema

(4) telangiectasia

(5) yellow skin

(6) erythema multiform

(7) intermittent flushing of the skin

(8) Raynaud's phenomenon/acrocyanosis

(9) clubbing and ridging of nails

(10) cutaneous angiomatosis

(11) calcification/ossification of the skin and subcutaneous tissues.

(12) oral lesions

(13) skin ulcers

(14) xanthoma

8. For each category of treatment/drugs listed below, TPWBA to list:
   a. indication and contraindications
   b. the most effective agents
   c. their relative cost
   d. their chief side effects

(1) acne preparations
(2) antihistamines
(3) anti-infective agents
(4) anti-inflammatory agents
(5) antiperspirants
(6) antipruritic agents
(7) cleansing agents
(8) cosmetics and covering agents
(9) depillatories and removal of excessive hair
(10) dermatologic topical preparations and vehicles
(11) insect repellants
(12) keratolytic and destructive agents; preparations for psoriasis, seborrheic dermatitis and other scaling eruptions.
(13) pigmenting and depigmenting agents, sunscreens
(14) wet dressings, baths and astringents

9. OBSTETRICS/GYNECOLOGY OBJECTIVES

Draft #5

1. TPWBA to elicit an accurate obstetric and gynecologic history as judged by a senior medical observor.

2. TPWBA to perform and accurately describe a pelvic examination including inspection of external genitalia, speculum exam of the vagina and cervix, bimanual baginal examination of the uterus and adnexa and rectovaginal exam, on normal and abnormal adult patients; the adequacy of this examination to be judged by a senior medical observor. TPWBA to distinguish normal from abnormal findings.

3. TPWBA to:

   a. Collect, prepare, examine and interpret a vaginal wet prep (including Swartz-Lamkin stain) and KOH prep.

      (1) TPWBA to recognize trich. vaginalis, yeast, clue cells.

   b. Prepare and interpret a cervical gram stain.

      (1) TPWBA to recognize gram negative intracellular diplococci and polys.

   c. Collect adequately and handle (planting on appropriate media when necessary) cervical, vaginal, and rectal specimens for bacteriologic and fungal culture.

   d. Adequately collect vaginal pool scrapings, endocervical swabs, and cervical scrapings, prepare slides from such material and fix appropriately for cytologic examination. He/she will be able to take appropriate action based on cytologic evaluation.

   e. Describe the indications for cervical pool scrapings and vaginal pool swabs.

   f. Accurately perform and interpret a cervical mucus arborization test.

   g. Instruct the patient in performing a basal body temperature chart.

      (1) GASOS about the BBT chart, TPWBA to STWAT.

   h. Instruct patients in the collection of specimens for HCG (pregnancy) tests.

(1) CASOS about the temporal features; sensitivity, and specificity of pregnancy (HCG) tests, including B sub-unit assay, TPWBA to STWAT.

4. TPWBA to collect an adequate subjective and objective data base and outline a logical approach to the diagnosis and management of the following situations: (the level of analysis and hence point of referral will generally be limited by the physician's technical skills -- see 3.)
   a. Missed period (suspected pregnancy)
   b. Functional menstrual disorder (secondary) including amenorrhea, excessive or irregular menstruation, and hypomenorrhea.
   c. Primary dysmenorrhea.
   d. Secondary dysmenorrhea.
   e. Premenstrual tension.
   f. Vaginal discharge.
   g. Infertility.
   h. Galactorrhea.
   i. Perineal pruritis.
   j. Dyspareunia.
   k. Post-menopausal bleeding.
   l. Lump in the breast.
   m. Stress incontinence.
   n. DES exposure.
   o. Venereal warts.
   p. Mastodynia.
   q. White lesions of the vulva.
5. For each of the following disorders, TPWBA to outline a diagnostic and treatment plan:
   a. Gonorrhea and syphilis.
   b. Acute and chronic pelvic inflammatory disease.
   c. Bartholin's cyst.
   d. Vaginitis (acute, chronic, atrophic)

6. GASOS about the physiology, diagnosis and management of the menopause, TPWBA to STWAT.
7. TPWBA to take a sexual history that will be adequate to:
    a. Determine dissatisfaction
    b. Given dissatisfaction, will allow the appropriate referral to be made to:
        (1) marriage counselor
        (2) psychotherapist
        (3) sex therapist
8. GASOS about the application and limitations of various methods of contraception, TPWBA to STWAT. He/She will be able to outline a teaching program for patients, ability to prescribe, and the stages in follow-up for the following methods: the pill, condom, diaphragm, IUD, cream, foam, jellies, rhythm, coitus interruptus, sterilization, and the morning after pill.
9. Given a series of common "minor" pill complications, TPWBA to outline a rational approach to manipulation of various types of BCP's.
    a. Pill composition
    b. Side-effects of estrogen and progesterone predominance.
10. Given a list of drugs commonly used in pregnancy, TPWBA to select:
    a. Those which are toxic to the fetus.
    b. Those which are toxic to the mother.
11. The physician will demonstrate an understanding of the major physiologic alterations of pregnancy and the interactions between common acute and chronic medical conditions and pregnancy.
12. The physician, GASOS about the presentation of ectopic pregnancy, will be able to STWAT.
13. GASOS about the clinical presentation of ovarian and uterine malignancies, TPWBA to STWAT.
14. GASOS about the clinical presentation of ovarian cysts, TPWBA to STWAT.
15. GASOS about therapeutic abortion procedures, evaluation, risk assessment, and follow-up, TPWBA to STWAT.

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Resource Paper No. 8

HMO CURRICULUM DEVELOPMENT:

SOME RELEVANT INSTRUCTIONAL RESOURCES

by

Arthur L. Elstein

and

Jack L. Maatsch

HMO Curriculum Development: Some Relevant Instructional Resources

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ABSTRACT

The use of Health Maintenance Organizations (HMOs) and other ambulatory care settings for undergraduate medical education poses a challenge, since an educational experience should not disrupt the care-giving mission of the organization. A number of simulation techniques are available that can help students improve their clinical skills outside the practice setting so as to facilitate effective and efficient use of the clinical experience. These include: use of simulated or actual patients to train students in history taking and communication skills; a variety of simulation equipment for training in different portions of the physical examination; clinical algorithms, flowcharts, computer-based or paper-and-pencil case simulations, and high-fidelity simulation games, all for instruction in complex, sequential problem solving. The techniques are briefly described, and possible uses in the medical school and HMO are suggested. 31 references.

HMO Curriculum Development: Some Relevant Instructional Resources[1]

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Health Maintenance Organizations (HMO) are gradually becoming a more common organizational format in the American health care system. Accordingly, attention is being focused on mechanisms for providing medical students with clerkship experience in the HMO to acquaint the next generation of physicians with prepaid group care and to assist in recruiting staff for the new organizations (1). Renewed interest in primary care has also emphasized the desirability of offering primary care experiences to the medical student; the HMO has been identified as one possible learning environment for this experience.

However, ambulatory care settings, whether prepaid or fee-for-service enterprises, challenge undergraduate medical education in some ways not at issue with inpatient care. Patients in an HMO are not available and idle for large blocks of time during which they are relatively free for a leisurely approach to a problem. The medical student must learn to work rapidly earlier in his career than has previously been the case. Furthermore, the economic soundness of the HMO is predicated upon provision of prompt and efficient service. Strategies developed for coping with teaching costs on inpatient services do not appear to be directly applicable since there is no third-party payer to provide an ever-increasing day rate. For these reasons, HMO managers and directors are appropriately concerned to provide educational experiences, especially in primary care, that are efficient, cost effective, and do not disrupt the care-giving mission of the organization.

How can medical students be helped to fit into this new learning environment early in their training and without an unreasonable expenditure of time and effort of HMO staff? This paper will outline a number of available instructional techniques that can help medical students (and residents) practice and improve their clinical skills outside the HMO setting so that their usefulness within the setting can be maximized. Each of these techniques is presently employed in several medical schools in North America though they have not yet been brought together in an HMO training package to our knowledge. The discussion will consider interviewing and history-taking skills, competencies for a physical examination, and instructional aids for problem solving and decision making.

Interviewing, History Taking, and Patient Interaction

A number of medical schools have developed instructional programs using simulated or actual patients to train medical students in more effective doctor-patient relationships (2,3). The participant interviewees have included mothers of essentially healthy children (4), college students either role playing or describing aspects of their own lives (5,6), and persons with significant medical problems (7). Trained counselors (8) who can guide medical students in improving their techniques for the gynecologic examination have also been used, thereby combining aspects of patient interaction training with instruction in physical diagnosis.

Voluntary and paid participants have been utilized. It appears that the major incentive for both groups has been to contribute to the training of new physicians and to direct the medical students' attention to the patient as a person. The pool of potential participants is large and available in most communities. Generally high levels of satisfaction of both instructors and students have been reported regardless of the group of interviewees used.

Commonly a student-patient encounter is videotaped for subsequent review and evaluation by the student and his tutor (9). The objectives of the exercise can vary. The program may focus chiefly upon the quality of the relationship with the patient, on cognitive issues related to mastery of history taking, or on perfecting specific skills associated with the physical examination. Of course, several objectives may be combined (10).

Physical Examination

Instruction in physical examination has long relied upon patients for teaching purposes. Recently, however, new devices have become commercially available that students can practice certain components of the physical examination on nonhuman models. These include heart and breath sound simulators; several simulators for the ophthalmoscopic and otoscopic examination; breast, pelvic, and rectal examination models; intubation simulators; and at least three types of resuscitation mannequins. Other devices are in development and evaluation stages (11,12,13).

These devices can help students initially develop and then practice examination skills so that less time is taken in learning fundamentals with actual patients (14,15). Practice can be arranged prior to or concurrent with HMO experience, but need not be in the HMO facility. The costs of purchasing, operating, and maintaining the equipment can be assigned to the medical school, not the HMO. Such laboratories are currently established at Michigan State University and the University of Illinois (13).

Clinical Problem Solving

The applications of simulation to teach and evaluate clinical problem solving and decision making can be grouped into three broad categories: protocols and algorithms, low fidelity simulations, and complex simulation games. Each has relatively specific purposes.

Protocols and Algorithms. Flowcharts, algorithms, and decision trees are all effective ways to learn the recommended way to work up and evaluate many specific clinical problems (16,17,18,19). Broader use of these instructional aids should be encouraged. One source of resistance to their adoption seems to be that medical educators have historically emphasized the implicit character of rules for working up patients and making decisions. Certainly the aim of medical education is not simply to teach a set of techniques, but also to teach understanding of the principles and rationale underlying them. However, the logic of clinical decision making can be made explicit and is more easily learned when it is. Background materials for protocols can illuminate the rationale for the steps in a workup and guide the students in an orderly and efficient decision process. While these learning aids can be useful to medical students on an inpatient clerkship experience, their value as an aid to efficient patient workups is most likely to be appreciated in a cost-conscious HMO.

Low Fidelity Simulations. The flowcharts and decision trees just discussed present a medical problem at a particular level of abstraction of reality. They assume the student can imagine a patient and provide guidelines for the orderly collection and evaluation of data from that patient. It is also possible to present patient problems in a format that more closely simulates the reality of patient interaction over time.

Computer-based simulations include those prepared by groups at the University of Illinois (20), Massachusetts General Hospital (21), and the University of Wisconsin (22). A range of computer-simulated cases are now available through the Health Education Network. The topic has been recently reviewed thoroughly (23).

Simulations in paper and pencil format are also available for use as both instructional and evaluative instruments (24,25,26,27). Performance can be objectively scored and relatively prompt response-contingent feedback to groups of students is provided. As instructional devices, however, they need to be supplemented, since many relevant clinical cues are nonverbal. Simulations with film clips, slides, and other nonverbal presentations of clinical data can be quite portable (28), but the process of design and revision is more time consuming than for verbally mediated simulations. Thus the level of fidelity to be sought in a particular design situation depends upon the intended audience, the purpose of the simulation, the expected frequency of revision, and the funds available.

The fidelity of paper-and-pencil simulations to clinical reality can be varied by altering the amount of graphic and pictorial material provided, and by the decision to use either a linear or branching format. In the linear format, the student moves from one section of the case to the next in a fixed sequence. At the beginning of each new section, optimal resolution of the preceding section is often summarized (25,26). In the branching format, the student is periodically offered a choice from among several alternatives. The content of subsequent sections and the number of sections traversed before the problem is concluded are a function of prior choices (24,27).

The use of simulations need not be limited to self-instruction and evaluation. They can also be more closely integrated into classroom or clinical teaching, by serving as the focus for group discussion or tutorials (29,30).

Complex Simulation Games. Some simulations combine an interactive problem-solving instructional format with a still higher level of fidelity to clinical reality. A preceptor plays a diagnostic and management "game" with one or more students and subsequently debriefs their performance. The patient's report of complaints in the medical history is provided by the instructor in the patient's own language so that the student can practice translating these verbal descriptions into formal medical cues. Physical examination data and laboratory tests are provided in the form of films, pictures, x-rays, laboratory slips, and audio tapes where appropriate. By extending the time frame encompassed by the simulation, it is possible to provide either the patient's response to various treatments or complications arising when appropriate action is delayed or not undertaken. Simulation games with these capabilities have been designed by Maatsch, Holzman, and Greenbaum (31,32). The initial cases simulated involve primarily medical and obstetrical-gynecological emergencies at undergraduate levels of complexity. The cases selected are not frequently encountered during clerkships and residencies.

The simulation game format has been a useful adjunct in helping medical students broaden their experience and sharpen their diagnostic and management skills in the absence of real patient experience. The technique is easily adapted to the needs of a particular HMO by jointly assessing the instructional needs of the students and the caseload of the HMO. The most prevalent cases and the functions the student is to perform in the HMO setting can be established so that the latter can be practiced under simulated game conditions until a desired level of proficiency is reached. If an existing game fits, it may be employed with relatively little training of tutors, or new game can be designed rather easily by modifying existing HMO case files of appropriate patients.

Summary

All simulation techniques have the common property of representing certain features of the clinical process without direct involvement of the patients or personnel of an actual clinical setting. The learner is then better prepared and more able to function effectively during subsequent real patient encounters in ambulatory settings. Simulations serve as preparation for clinical experience, not as substitutes for it. The optimal combination of these techniques and the medical content to be stressed, however, depend upon the goals and specific objectives of a particular HMO clerkship. With fundamentals mastered in simulated clinical experiences, actual patient contacts in the HMO should be more rewarding for both the student and the organization.

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FOOTNOTE

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Resource Paper No. 9

REPORT OF EFFORTS TO DEVELOP A STANDARDIZED TEST OF KNOWLEDGE AND ATTITUDES RELEVANT TO THE HMO SETTING

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March 30, 1976

Submitted to the Association of American
Medical Colleges as part of a project to develop
curricula for physician training in HMO's

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Report of Efforts to Develop a Standardized Test of Knowledge and Attitudes Relevant to the HMO Setting

Introduction

Jerome Bruner in The Process of Education has pointed out that "examinations can also be allies in the battle to improve curricula and teaching."(1) In undertaking to develop curricula for physician training in HMO's, the AAMC proposed an evaluation of the results of efforts of the six participating medical schools. While each individual school was free to undertake an evaluation designed to serve its local purpose, the development of an evaluation tool derived from a common core of educational objectives was also considered as a cooperative effort. Such a tool should ultimately serve, as Bruner suggests, as an ally in the broader efforts to improve teaching of an HMO curriculum, not only for the institutions participating in the project, but in medical schools generally. This report describes the preliminary efforts to produce a common core instrument, the HMO Education for Physicians Knowledge and Attitude Test (HEPKAT).

While the report describes in some detail the effort undertaken to date, it is not final either with regard to the instrument itself or the developmental work required to achieve minimum essential standards basic to sound test construction.(2) A more complete report is anticipated by the end of this year.

Purpose of the HEPKAT

The HEPKAT is under development to serve primarily as an achievement test. While it includes a section measuring attitudes, the essential purpose for the entire instrument is that of an assessment device designed to measure changes in students' knowledge and attitudes as a function of exposure to curricular experiences organized to meet a specific set of educational objectives. These objectives, which have been described elsewhere,(3) represent a defined area of interest significant to the development of manpower in health care delivery settings. As such, the test is being so designed as to be useful for long term evaluation efforts (e.g., to assess first year to fourth year change in medical students) as well as the short term evaluation of the effectiveness of a single course, a clerkship, or an intersession experience in achieving the stated objectives.

Description of the HEPKAT

The HMO Education for Physicians Knowledge and Attitude Test (HEPKAT) is a four part instrument. The sections of the instrument include:

I Knowledge items; True-False
II Knowledge-Judgment items; Multiple-Choice
III Attitude items; Likert Scale
IV Career Choice Information

Minimum biographical identification information can be obtained on the cover sheet. The three sections testing knowledge and attitudes contained 30, 20, and 77 items respectively in the first administration of the test. The number of items will not remain constant in subsequent administrations of the test, since test statistics will be obtained and used to improve the instrument. Nevertheless, in its present form, it requires approximately 40 minutes for administration. Since a practical goal was set to produce an instrument that could be administered within the limits of a 50 minute class period, the test will be lengthened somewhat in subsequent drafts. Keeping the test sections at maximum length compatible with testing opportunities defined by the purposes set forth above is an objective that derives from the known relationship between test length and reliability.(4)

The response format for each section of the test is standardized to assure easy familiarity by any group of respondents and also to expedite the development of test statistics to be used in test development.

In its present form the test is a mimeographed document available from the author without cost in exchange for data that can be used in its development.

Method

The initial impetus for this effort derived from a joint conference of the six schools held at Cambridge on September 29-30, 1975. At this conference, interest was expressed in the preparation of common evaluation devices to avoid duplication of effort, to allow inter-school comparisons, to evaluate the project in its entirety and as a useful by-product for future research purposes. A later meeting of the project evaluators was held at the instigation of Marcel Infeld, AAMC project officer, on November 9, 1975. The participants in this meeting reached the consensus that an instrument reflecting a core of curricular objectives common to all schools could and should be developed. The steps involved item writing, editing of items and rational evaluation of the content validity, preparation of the test format and a preliminary draft copy, and finally collection of data from readily available samples of students. To date these steps have been completed, although only a small sample of students has been tested. Results for this sample are presented here in order to give some preliminary statement of the range and type of responses to the proposed items and to encourage further use of the HEPKAT so that development of the instrument can proceed.

In addition to the completed steps outlined above, further plans call for the addition of items according to a map of the curriculum content domain outlined in the University of Pennsylvania set of educational objectives. Table 1 presents the initial plan for item writing distinguishing between two categories of items: (1) those designed primarily to assess learning of cognitive materials at the knowledge level, and (2) those designed to assess affective learning as reflected in attitudes. For the first category, the assessment of knowledge, two item types were used, true-false and multiple-choice. The measurement of attitudes was approached using Likert type attitude items as a basis for later scale development.(4) While the format in Table 1 indicates the intent to spread items over the various content categories as a means of assuring content validity, in practice the preliminary draft of the HEPKAT falls short of this objective (see Appendix A). More true-false andLikert type items were obtained than called for in the plan and fewer than the desired number of multiple-choice items were

Table 1. Item source and distribution plan for development of the HEPKAT content and format (Ni entries are estimates of final number of items to be derived).

Curriculum modules

Taxonic Content	Item Format	1 Primary Health Care Comprehensive Care	2 Health Care Team	3 Active Consumer Participation	4 One Quality Health Care	5 Economics of HMO's	6 Change and Innovation
Knowledge	True-False Ni=60						
	Multiple Choice Ni=48						
Attitudes	Semantic Differential Ni=8						
	Likert Items Ni=54						

available. These differences will be rectified as the test is revised and item data from larger samples become available. Thus, items with extremely high or low difficulty levels or with poor item-total correlation will be discarded before the test format is finally set.

Items were obtained by several means. Source documents such as An HMO Dictionary and A Medical Student's Guide to Health Maintenance Organizations were carefully reviewed. As another step, the provider staff of the Penn Urban Health Maintenance Program was extensively employed and, through the use of guided interviews, encouraged to generate both knowledge and attitude items. From this latter effort, we were more successful in obtaining attitude items as opposed to cognitive items, the latter being most readily generated from the source documents.(5,6)

The essential activity involved in the construction of a measurement instrument is that of mapping stimuli, usually test items, into a number system. A test score or a profile of scores represents the final product of an entire set of mapping operations. To assure that the numbers assigned to students as test scores have meaning, we strive to achieve a number of characteristics for our test. One characteristic sought is often referred to as the functional unity of the test and implies that some degree of consistency exists in the way we mapped out the test and then subsequently assigned scores or scale values to the particular stimuli or test items. The operations of test construction affect the functional unity and are implicit in decisions made in the development of the HEPKAT, such as selection of item format, number of items, range of scale values, and practical considerations in the use of the test for assessment as opposed to prediction. These considerations are particularly of concern in the development of attitude scales. In addition, two other characteristics of a measurement instrument, reliability and validity, required attention. The mapping described in Table 1 above is important to the content validity of the test, while decisions on the number of items will later affect the reliability of the test scores, which in turn can affect its utility in assessing the adequacy of a new curriculum change.

The objective test items cast in the true-false and multiple-choice format in Parts I and II of the test were designed to test cognitive material in the curriculum. While the majority of the items would generally be classified at a low level in the taxonomy of educational objectives, calling as they do for factual knowledge or information, some require higher order processes. As the test is further developed every effort will be made to include additional items that require the higher cognitive processes.

In the construction of attitude items in Part III, the fundamental requirement is the opportunity for the respondent to express some degree of orientation either for or against the object, person, relationship, or activity being described. The Likert method was employed in this part of the test. It involves an initial compilation of a set of statements related to an attitude object which are then presented to a group of respondents to be rated according to the extent of their agreement or disagreement.(4) Once we have obtained data from a group of students, some items will be eliminated, others rewritten or improved, and on the basis of the interrelationships among the items, an attitude scale of some consistency will be cast.

The first opportunity for use of the HEPKAT preliminary draft was with a group of 27 students who attended the Intersession Course on Comprehensive Care at the University of Pennsylvania. This week long course is staffed by primary care providers in the Penn Urban Health Maintenance Organization and is an intensive experience involving approximately 35 contact hours with the students. In the group tested with the HEPKAT, there were seven students from medicine, six from nursing, five from social work, and nine from allied health, law administration and other fields with a related interest. The intersession experience was a short, intensive introduction to most aspects of the HMO curricular content developed in the AAMC project. A pretest was administered following introductory comments the first morning and a posttest was employed at the end of the fifth and last day. Some personal rating scales were dropped from the posttest administration due to time constraints; otherwise the test was identical for both administrations.

One development anticipated for the future will be the generation of alternate forms of the test designed to be comparable in content, difficulty level, etc.

Results of the Pilot Sample

The first three sections of the test were initially analyzed separately. The analyses focused primarily on item data and rapid approximate non-parametric techniques were employed.

Part I of the test, the true-false section, yielded pretest scores on the 30 items ranging from 14 (a score that could be obtained by chance) to 27. For the posttest, the range was essentially the same, i.e., 16 to 27, although the average score increased. Part II, the multiple-choice section, had pretest scores ranging from 10 to 18 and posttest scores ranging from 11 to 18. The rank order correlation of pretest scores on Parts I and II was .41. When Parts I and II were combined to yield a total score for the knowledge section, scores ranged from 24 to 43 on the pretest and 28 to 45 on the posttest. The pretest mean for the combined Parts I and II was 33.3 and 36.5 for the posttest, indicating an increase of three items answered correctly for the group. While this is statistically significant, it may be somewhat more meaningful to indicate that of 24 students for whom the test data were complete from pretest to posttest, 20 improved their score, one stayed the same, and three experienced a decrement in their scores. The raw score means and ranges are presented in Table 2.

Table 2. Pretest and posttest means and raw score ranges for 24 intersession students on objective test items.

		Raw Scores		$\text{rho}_{\text{I II}}$
		Mean	Range	
Part I	Pretest	21.2	14-27	
	Posttest	23.1	16-27	.41
Part II	Pretest	12.5	10-18	
	Posttest	13.4	11-18	
Total Score	Pretest	33.7	24-43	
	Posttest	36.5	28-45	

Item difficulty levels were also examined, as were the item total correlations, but the sample size is not sufficient for these analyses to yield data of any psychometric interest pertinent to test development. It is of casual interest that the items did range in difficulty level from four items which no one answered incorrectly to ten items of sufficiently high difficulty level that the group did no better than a chance response on the pretest (Table 3). In brief, the objective test items covering the knowledge component of the test are promising and, if the pilot sample is at all indicative, should, with further development, yield a reliable, valid and discriminating instrument.

Finally, Part III was analyzed by comparing pretest and posttest responses item by item for the total group. Complete data for this analysis was available for 23 students. Pretest and posttest item means are presented in Table 4. These give some prospective indication of the direction of scoring for the items but further development of Part III awaits a sample size sufficiently adequate to subject the items to a factor analysis as a preliminary step in scale development. A minimum sample size for such an analysis would require at least three times as many subjects as we have items. Thus, at a minimum we will need approximately 250 students.

Again, for illustrative purposes, we have presented in Table 5 those items which yielded significant chi-squares when pretest and posttest responses were compared. Item responses were dichotomized as close to a median split as possible and a chi-square computed from the resulting four-fold table for each item. Eight items had response changes from pretest to posttest at less than the .10 level of confidence. Since 77 items were analyzed, one might expect eight such results by chance alone, not an auspicious finding. Examination of the content of the eight items is interesting, though, inasmuch as there is a communality represented in these items which is antithetical to the concept of random

Table 3. Percent Correct Response for Objective Test Items for Pretest Group (N=27)

True-False Items

Item No.	Percent Correct	Item No.	Percent Correct	Item No.	Percent Correct
1	96	11	59	21	89
2	41	12	48	22	82
3	100	13	74	23	48
4	37	14	93	24	70
5	100	15	96	25	100
6	85	16	67	26	100
7	89	17	85	27	85
8	63	18	93	28	59
9	82	19	44	29	44
10	85	20	33	30	26

Multiple-Choice Items

Item No.	Percent Correct	Item No.	Percent Correct	Item No.	Percent Correct
1	89	8	56	15	89
2	85	9	22	16	30
3	63	10	63	17	93
4	41	11	56	18	67
5	63	12	63	19	78
6	93	13	78	20	48
7	89	14	89		

Table 4. Item means for HEPKAT attitude statements for pretest and post test. (N = 23)

Item No.	Pretest Mean	Postest Mean	Item No.	Pretest Mean	Postest Mean	Item No	Pretest Mean	Postest Mean	Item No	Pretest Mean	Postest Mean
1	4.83	4.65	21	2.30	1.78	41	1.26	1.43	61	4.22	4.26
2	3.78	3.48	22	2.17	1.87	42	1.78	1.96	62	2.61	2.39
3	1.70	1.57	23	2.04	1.87	43	1.61	1.65	63	4.04	4.30
4	4.09	4.00	24	4.56	4.35	44	4.09	4.09	64	2.70	2.61
5	1.30	1.26	25	1.74	1.61	45	3.83	3.91	65	3.91	3.87
6	2.83	3.26	26	2.22	2.48	46	2.96	3.04	66	4.00	4.26
7	3.57	3.91	27	3.91	3.83	47	3.87	3.78	67	2.96	2.91
8	2.26	2.57	28	1.87	1.96	48	2.43	2.35	68	2.35	2.65
9	2.78	3.43	29	2.83	2.48	49	1.87	1.65	69	2.30	2.26
10	3.57	4.04	30	3.57	3.17	50	2.04	1.91	70	2.96	2.91
11	2.70	3.22	31	2.96	2.57	51	2.57	2.17	71	1.83	1.87
12	2.61	2.48	32	3.26	3.00	52	3.22	2.65	72	3.74	4.00
13	2.87	2.70	33	3.04	2.74	53	3.26	3.74	73	1.61	1.35
14	2.26	2.09	34	2.61	2.30	54	4.04	4.43	74	2.39	1.83
15	4.13	3.65	35	3.87	4.00	55	1.96	2.13	75	2.00	1.61
16	4.39	4.48	36	4.26	4.30	56	1.87	1.83	76	3.39	3.61
17	2.52	2.13	37	1.52	1.52	57	3.78	4.00	77	1.96	1.78
18	3.52	3.43	38	2.00	1.91	58	2.09	2.22			
19	1.91	2.04	39	1.78	1.91	59	1.91	1.74			
20	3.57	3.52	40	1.61	1.70	60	1.48	1.39			

Table 5. HEPKAT attitude statements yielding significant changes from pretest to postest in order of magnitude of the chisquare obtained. (N = 23)

tem No	Attitude Statement	Pretest* Item Mean	Postest* Item Mean	X^2	P	Direction of change
75	The primary health care provider should assume responsibility for integrating the patient's health care.	2.00	1.61	9.68	<.01	A→SA
52	Many physician assistants do not have a college education	3.22	2.65	9.13	<.01	D→u
53	The major function of nurse practitioners is to do histories and physicals with diagnosis and treatment being left up to the physician.	3.26	3.74	7.56	<.01	u→D
15	In a health care team, the design for diagnosis and treatment is the sole responsibility of the physician.	4.13	3.65	5.85	<.05	D→u
54	The function of nurse practitioner is to take physician's orders	4.04	4.43	4.57	<.05	D→SD
51	In a health care team, the nurse practitioner monitors the patient's progress over time and modifies treatment accordingly.	2.57	2.17	3.70	<.10	u→A
9	It is important that the physician directly obtain the information essential to a complete history and physical	2.78	3.43	3.14	<.10	u→D
10	To do good primary care you have to know everything	3.57	4.04	2.99	<.10	u→D

*1 = Strongly agree; 2 = Agree; 3 = Uncertain; 4 = Disagree; 5 = Strongly Disagree findings. Most of the items are in some way concerned with the relationship between the nurse practitioner and the physician vis-a-vis their role responsibilities.

In general, the results of this small pilot sample are most promising and a number of first order objectives were served. We did not show dramatic changes from the Monday to Friday pretest-posttest administrations of the test, but both test and curriculum are in the first stage of development and the exposure time for the students was very limited. In retrospect, those areas for which the students showed a good deal of interest and motivation, such as the team concept or the physician-nurse practitioner relationship were areas in which the test showed some sensitivity.

As important as the statistical data, was the opportunity to observe student response to the type of items being tried, to observe their behavior in the test situation, to estimate the time required to take the test, to find editorial corrections in the instructions, and to develop some confidence that the general format and content of the items appear to be serving our purposes. In the next use of the test, several items will be dropped, such as those which were of such ease that no one marked the item incorrectly. We can learn from even this small bit of data that many of the multiple-choice incorrect answers do not serve adequately as seductive distractors and may therefore need to be rewritten in order to raise the difficulty level of the item. These and other corrections and improvements will be incorporated into the next draft of the HEPKAT.

Summary and Projected Plans

Preliminary efforts to develop an instrument to test knowledge and attitudes relevant to core content in curricula for physician training in HMO's indicate the feasibility of such a plan. Results of a small pilot sample exposed to the curriculum content for a one week intensive experience indicate that the items produce a range of response and are sensitive to change over even short exposure to the curriculum. The need for revision of items is apparent and next steps in the development of the test include adding items in certain content areas, testing a larger sample and subjecting the attitude items to a factor analysis for the purpose of developing reliable and coherent subscales.

Follow-up plans are outlined in the Timetable presented in Appendix C. This tentative outline is contingent upon the continuing interest of the cooperating schools and others who may wish to participate in this developmental effort. Most critical to continuing progress on the test will be access to students for testing time. In the next effort opportunistic samples will serve our purpose. In the final stages of test development, though, representative samples of medical students will be required in order to establish norms to enhance the general value of the instrument.

HEPKAT

HMO EDUCATION FOR PHYSICIAN KNOWLEDGE AND ATTITUDE TEST

Identification items

Name ______________________________

Field of study ____________________

Year in program ___________________.

Preliminary Draft

Edwin B. Hutchins, Ph.D.

January, 1976

PART I. Each of the statements below are generally true or generally false. Please indicate your response to each statement by circling one of the two following alternatives: T==true, F==false

1. T F The goals of health maintenance are prevention of disease and disability and early identification of abnormalities or threats to health.
2. T F Blue Cross and Blue Shield is a fee-for-service plan.
3. T F The social worker has specific knowledge about community resources.
4. T F The first medical cooperative in the United States was organized in the late 19th century.
5. T F Environmental factors strongly influence the health of an individual.
6. T F Economic factors strongly influence the health of an individual.
7. T F Psychosocial factors strongly influence the health of an individual.
8. T F A carrier does not underwrite risks in health care insurance.
9. T F For the most part, at the present time the American medical system is directly accountable to patients.
10. T F Community corporations are being developed mostly by large insurance companies.
11. T F In November of 1975, major employers in the United States were required to offer a dual option to their employees.
12. T F A "hesitation payment" is a charge required of a patient who misses an office visit appointment.
13. T F A voluntarily enrolled group is one in which the employer can exercise his option to enroll his employee.
14. T F Periodic followups are not an essential component of comprehensive care.
15. T F For the patient, finding a place where appropriate health care is delivered at a reasonable price is a major problem.
16. T F A provider is an insurance carrier providing the means to pay for health services
17. T F Twenty-four million Americans have no health insurance of any kind.
18. T F An individual's race can be a deciding factor in the quality of the health care that he receives.
19. T F Capitation payment is the amount of money required per person to provide covered services for an unspecified period of time.
20. T F Reciprocity implies the right of a group health plan member to receive medical care from any other HMO in his home area.
21. T F Prepayment provides in advance for the cost of predetermined benefits for a population group through regular periodic payments.
22. T F An option offered an employer between two provider organizations is referred to as dual choice.
23. T F An extended care facility provides primary, secondary, and tertiary levels of medical care.
24. T F Cost centers are functional areas that generate the basic costs incurred to provide the plan's range of benefits.
25. T F Comprehensive care provides for that broad spectrum of health services necessary to the prevention, diagnosis and treatment of physical and mental illness [illegible] to the maintenance of health.
26. T F Blue Shield is a prepaid health plan designed specifically to cover the needs of municipal employees such as policemen and firemen.
27. T F In some HMO's, expansion is computed as part of the capitation rate to provide capital for growth.
28. T F A fee schedule is the schedule of payments a fee-for-service patient makes when subjected to catastrophic illness.
29. T F The term health maintenance organization is specifically defined by law.
30. T F A noncontributory arrangement is one in which the employer, union, or third party pays nothing.

PART II. For the following items, select a single best answer. Please indicate your response by circling the letter in front of the alternative you have chosen as the correct answer.

1. Third party payments
   - A. are payments for health care made by the beneficiary in his own behalf
   - B. are payments for health care when the beneficiary is not making payment in whole or in part on his own behalf
   - C. are payments made by a parent or guardian in behalf of a dependent
   - D. are payments made by a third party in behalf of the consumer.

2. Placement in an extended care facility should not be based upon
   - A. medical problems
   - B. ability to pay
   - C. social problems
   - D. functional impairment

3. In 1848 the first British public health legislation was primarily concerned with
   - A. mandatory vaccination
   - B. sanitation
   - C. The Royal College of Physicians
   - D. medical education

4. In the period from 1960 to 1970, hospitalization costs in the United States increased
   - A. equivalent to the standard of living index
   - B. 25%
   - C. 100%
   - D. 300%

5. Under a union-sponsored health benefits program, funds to finance the program may come from all but one of the following
   - A. federal government matching funds
   - B. union members contributions alone
   - C. employer and union members contributions
   - D. employer contributions alone

6. In the provision of health care, accountability should be to
   - A. one's professional colleagues alone
   - B. to the patient alone
   - C. to the patient and the profession
   - D. to the patient, the profession, the community and society at large

7. Which of the following practice arrangements do not generally have salaried physicians?
   - A. Kaiser Permanente
   - B. fee-for-service practice
   - C. foundations for medical care
   - D. the Public Health Service

8. The Health Maintenance Organization Act P.L. 93-222 did all but which of the following?
   - A. provided prospective eligibility to both PPGP plans and MCF plans
   - B. made optional the dual choice clause
   - C. added support to existing plans through grants and loans
   - D. encouraged the development of new HMO's

9. One reason that some HMO's are not "qualified" is that
    A. they are comprised of multi-specialty groups
    B. they did not apply for federal funding
    C. they have a recognized medical group
    D. they have become a recognized Individual Practice Association

10. The concept of comprehensive care focuses on
    A. the development of extended care facilities for the elderly
    B. the maintenance of physical and mental health as opposed to illness
    C. patient education so that the care provided is comprehensible and therefore followed by the patient
    D. a broad spectrum of health services including physician services and hospitalization

11. Of the following quality control groups, which one also performs third party functions?
    A. certified hospital admission program
    B. professional standards review organization
    C. quality assurance program
    D. medical care foundations

12. Which of the following is not a health status indicator?
    A. activities of daily living
    B. morbidity
    C. race
    D. functional assessment

13. Medicare is a program designed to
    A. pay most of the health care expenses of the indigent
    B. pay most of the health care expenses of the elderly
    C. experiment with national health insurance
    D. redistribute the wealth

14. Accessibility implies that health care is
    A. paid for by a third party
    B. close to one's home
    C. within the reach of all
    D. geographically, financially, and socially available on an equitable basis

15. Which of the following is not a basic principle for developing an effective HMO?
    A. prepayment
    B. a dependent, externally governed physician's organization
    C. a contractual responsibility between the plan and its members
    D. physician's payment influenced by shared financial responsibility

16. HMO's are careful to allow the members free choice by
    A. avoiding mutual contractual commitments
    B. suggesting alternative providers whenever they indicate dissatisfaction
    C. leaving issues of accountability entirely to the members' consumer organization
    D. allowing the members to choose from among the HMO's accepted physicians

7. Evaluation of HMO performance has been done through utilization studies. These findings show
   A. lower hospital utilization and elective surgery rates
   B. higher family health care expenditures
   C. no change in infant mortality rates
   D. no change in mortality rates for the elderly

8. By 1980 the need for physicians practicing in HMO's is estimated to be
   A. 10,000
   B. 20,000
   C. 40,000
   D. 80,000

9. The traditional distinction between the primary role of medicine and the primary role of nursing lies in
   A. application of the "curing" and "caring" processes
   B. the level of competency achieved
   C. the quality and comprehensiveness of the respective educational programs
   D. acceptance by the patient

0. Which of the following is not true of home care programs?
   A. they are easily organized
   B. it is one of the least utilized services a hospital offers
   C. it is an important and recognized alternative to inpatient care
   D. it is one of the more expensive medical services

PART III. Indicate your reaction to each of the following statements by circling one of the five following alternatives:

SA Strongly Agree
A Agree
U Uncertain
D Disagree
SC Strongly Disagree

Please do not omit any items.

1. SA A U D SD Recognizing the impact of chronic disease on patients and family is not a concern of the primary physician.
2. SA A U D SD In medicine, competency is directly related to the amount of schooling.
3. SA A U D SD Physician assistant and nurse practitioners, because of differing educational and professional experiences, bring added dimensions to the health care setting.
4. SA A U D SD Nurse practitioners who seek to serve some of the physician's functions are practicing medicine without a license.
5. SA A U D SD Regardless of station in life, all citizens have a right to quality health care.
6. SA A U D SD Social services are primarily made available for lower socio-economic class patients.
7. SA A U D SD In a health care team the primary concern of the social worker is the patient's difficulties with finances and housing.
8. SA A U D SD Because providers generally come from middle class backgrounds, they have problems relating to lower class patients.
9. SA A U D SD It is important that the physician directly obtain the information essential to a complete history and physical.
10. SA A U D SD To do good primary care you have to know everything.
11. SA A U D SD Physician assistants and nurse practitioners are primarily well trained in physical diagnosis.
12. SA A U D SD It is reasonable for a nurse practitioner to have a signed pad of prescriptions for prescribing specific drugs under protocol.
13. SA A U D SD Because the government only reimburses at given levels of payment, publicly supported patients will necessarily receive health care of a lesser quality than that received by private patients.
14. SA A U D SD An important function of the social worker is to stimulate positive change in health care delivery.
15. SA A U D SD In a health care team, the design for diagnosis and treatment is the sole responsibility of the physician.
16. SA A U D SD The primary care physician need not maintain communication with the patient during the period when a consultant is involved in a specific course of action.
17. SA A U D SD Any inadequacies in health care in this country are especially felt by those who are not white or male.
18. SA A U D SD A nurse practitioner is a nurse with a few added skills.
19. SA A U D SD American doctors are generally chauvinistic.
20. SA A U D SD The physician who utilizes the services of nurse practitioners is constantly risking malpractice suits.
21. SA A U D SD Middle and upper socio-economic families have psychosocial needs which must be met in any truly comprehensive health care delivery system.
22. SA A U D SD In working with families where the incidence of psychosocial problems is high, the social worker could be the primary care provider.
23. SA A U D SD Because of her nursing background, the nurse practitioner brings to the health care team skills and attitudes different from those of the physician.
24. SA A U D SD Information obtained from consultants is medical in nature and need not be shared with other members of the health care team.

I would personally feel comfortable being treated by a nurse practitioner working in a health care team setting if it was for;

25. SA A U D SD a "bad cold"
6. SA A U D SD painful burning on urination
7. SA A U D SD head trauma with loss of consciousness for 2 minutes
28. SA A U D SD a headache of 1 day duration
29. SA A U D SD followup on a lab test which indicated an elevated fasting blood sugar
30. SA A U D SD depression of 3 weeks duration
31. SA A U D SD my feats of dying following removal of a cancerous pancreas
32. SA A U D SD my 18th month old infant who has a temperature of 104 and is pulling his ear
33. SA A U D SD my 6 year old child who has started bed wetting after being toilet trained for 3 years

34. SA A U D SD Physician assistants working in hospitals should be able to write orders under protocols.
35. SA A U D SD Nurses are primarily trained to make patients feel comfortable.
36. SA A U D SD The psychiatrist is the only provider competent to deal with mental problems.
37. SA A U D SD The patient should be a participant in the health care team's decisions regarding his health care.
38. SA A U D SD In a health care team, the social worker is concerned with the patient's life stresses and his ability to cope with them.
39. SA A U D SD The individual physician has an obligation to help change the health care delivery system in this country.

The following situations are valid reasons to consult with other physicians and make appropriate use of their advice:

SA A U D SD The patient's family requests another opinion.
SA A U D SD The physician feels that the problem exceeds his competency.
42. SA A U D SD Patient care can be instituted more efficiently or economically by another physician.
43. SA A U D SD The relationship between the physician and/or family is unsatisfactory.

4. SA A U D SD In a health care team, the principal task of the nurse practitioner is to record the chief complaint and measure the vital signs.
5. SA A U D SD While other consultants are involved in a patient's care, the primary care physician is temporarily removed from the ongoing management of the patient.
6. SA A U D SD It is dangerous to give a person a few skills and then turn the person loose with patients.
7. SA A U D SD HMO's are a form of communism.
8. SA A U D SD A physician should be able to trust the physician assistant to prescribe certain drugs under protocol.
9. SA A U D SD The social worker enhances the physician's understanding of the patient as a whole person with definite environmental factors impinging on his health status.
0. SA A U D SD An important function of the social worker is that of patient advocate.
1. SA A U D SD In a health care team, the nurse practitioner monitors the patient's progress over time and modifies treatment accordingly.
2. SA A U D SD Many physician assistants do not have a college education.
3. SA A U D SD The major function of nurse practitioners is to do histories and physicals with diagnosis and treatment being left up to the physician.
SA A U D SD The function of nurse pracitioner is to take physician's orders.

55. SA A U D SD An important role of the social worker is to facilitate competencies of health care team members in the assessment of psychosocial factors in the health care of the patient.

56. SA A U D SD The social worker aids the physician in appropriate use of psychosocial providers through collaboration or direct referral.

57. SA A U D SD In a health care team, the principal task of the physician is to obtain the history and perform the physical examination.

58. SA A U D SD Specialization is important because you can't know everything.

59. SA A U D SD Many of the traditional functions of a physician can be adequately served by a nurse practitioner.

60. SA A U D SD Regardless of the method of payment, all patients in a comprehensive health care setting should receive the same quality of care.

61. SA A U D SD The social worker's primary function is to help the patient obtain welfare monies.

62. SA A U D SD In a health care team dealing with a child performing poorly in school, it is the responsibility of the social worker to obtain records from the school.

63. SA A U D SD Primary care is not intellectually challenging.

64. SA A U D SD Under protocol, physician assistants should be able to treat common chronic diseases (such as hypertension, chronic heart disease, diabetes), including ordering and interpreting tests and making the decision for prescription of medication.

65. SA A U D SD Different levels of health care are to be expected for people of different socioeconomic classes.

66. SA A U D SD There is no need for a social worker in servicing middle class obstetrics patients.

67. SA A U D SD The principal role of the nurse practitioner is to execute the simpler tasks traditionally assumed by physicians.

68. SA A U D SD In a normal family situation, the social worker should be an integral part of the primary health care team.

69. SA A U D SD Physicians should be willing to sign prescription forms filled out by a nurse practitioner colleague.

70. SA A U D SD The level of competence of a nurse practitioner approaches that of a general physician.

71. SA A U D SD In dealing with a family having limited resources, knowledge about available community fund agencies can be as important to health care as medical information.

72. SA A U D SD Nurse practitioners should not be allowed to deal with patients except under direct supervision by a physician.

73. SA A U D SD Patient education is an important function of an HMO.

74. SA A U D SD Nurse practitioners are co-equal with physicians as members of the health care team.

75. SA A U D SD The primary health care provider should assume responsibility for integrating the patient's health care.

76. SA A U D SD I would feel more secure working in a limited field than in general practice.

77. SA A U D SD The health care team represents one of the most efficient means of delivery of quality health care.

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IV

Career Choice Items

This section of the test asks for information on your plans for the future. We would like to obtain here your best estimate of the kind of career you would like to have when you finish your training.

1. Please estimate the percent of time you plan to spend in each of the following professional activities.

	Time in Percent
Patient Care	______
Research	______
Teaching	______
Administration	______
Other ____________ please specify	______ 100%

2. Please indicate which field best describes the medical practice you plan to enter. Check one only.

____ Anesthesiology
____ Basic medical sciences
____ Dermatology
____ Family practice
____ General practice
____ Internal medicine, general
____ Allergy
____ Cardiovascular disease
____ Endocrinology
____ Gastroenterology
____ Hematology
____ Infectious diseases
____ Pulmonary disease
____ Neurology
____ Obstetrics/gynecology
____ Ophthalmology
____ Otolaryngology
____ Pathology/clinical pathology
____ Pediatrics, general
____ Pediatrics, allergy
____ Pediatrics, cardiology
____ Physical medicine and rehabilitation
____ Psychiatry
____ Public health and preventive medicine
____ Radiology
____ Surgery, general
____ Surgery, neurological
____ Surgery, orthopedic
____ Surgery, plastic
____ Surgery, thoracic
____ Urology
____ Other; please specify: ____________________

3. What type of practice do you plan to enter? Check one only.

____ Solo
____ Partnership
____ Group
____ Hospital based
____ HMO based
____ Other; please specify: ____________________

APPENDIX B

HEPKAT scoring key for preliminary draft Parts I and II

Part I

Item	Correct Answer	Item	Correct Answer	Item	Correct Answer
1	T	11	T	21	T
2	F	12	F	22	F
3	T	13	F	23	F
4	F	14	F	24	T
5	T	15	T	25	T
6	T	16	F	26	F
7	T	17	T	27	T
8	F	18	T	28	F
9	F	19	F	29	T
10	F	20	F	30	F

Part II

1	D	8	B	15	B
2	B	9	B	16	D
3	B	10	D	17	A
4	C	11	D	18	C
5	A	12	C	19	A
6	D	13	B	20	D
7	B	14	D		

APPENDIX C

Project to Refine the HEPKAT

Time Table for Implementation

	Activity	Target Date
1.	Send copies of preliminary report on HEPKAT to Project Evaluation Consultants	March 28, 1976
2.	Return critique of preliminary report and suggestions for item revision and addition of new items	April 23, 1976
3.	Revise draft of HEPKAT; delete and add items	May 1, 1976
4.	Readminister to opportunistic samples	April, May 1976
5.	Pooling of available data from six schools for test analysis:	
	(a) Item anayses, Parts I and II	June 30, 1976
	(b) Factor analysis, Part III	July 30, 1976
	(c) Item correlations with Part IV information on career choice	July 30, 1976
6.	Construction of attitude scales	August 15, 1976
7.	Refined form of HEPKAT completed and printed	September 1, 1976
8.	Testing of entering first year classes of cooperating schools	September 30, 1976
9.	Scoring of test protocols and development of normative data for entering classes	October 30, 1976
10.	Correlation of data with career choice information	November 15, 1976
11.	Feedback via return of individual school profiles to cooperating schools	December 1, 1976
12.	Final report	December 30, 1976

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DRAFT

Resource Paper No. 10

AN HMO BASED PRIMARY CARE CURRICULUM FOR FIRST YEAR MEDICAL STUDENTS - DESIGN, EVALUATION AND DISCUSSION

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The project cited here was supported by a subcontract from the Bureau of Health Manpower, Health Resources Administration, to the University of Rochester School of Medicine and Dentistry through the Department of Health Services at the Association of American Medical Colleges.

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Submitted to the Journal of Medical Education, June 9, 1976.

ABSTRACT

Although the role of curricula in the determination of physician career choice is obscure, it is generally accepted that career options such as primary care will atract more subscribers if they are better represented in the curriculum. This project designed, applied and evaluated a semester long series of HMO based primary care experiences for first year students. HMO based students were compared with students in other primary care settings as to: 1) knowledge of primary care and the doctor/patient relationship; 2) knowledge of a variety of modes of structuring health care delivery and 3) effect on career choice. The project structured experiences which allowed students a maximum amount of direct contact with both health care providers and patients in the HMO setting. Pre/post comparison showed small, but significant, differences within the treatment group. Evolution of student career choice and the limitations of meeting health manpower goals by curricular changes are discussed.

AN HMO BASED PRIMARY CARE CURRICULUM FOR FIRST YEAR MEDICAL STUDENTS - DESIGN, EVALUATION AND DISCUSSION

Although predicting that economic and social factors would be the most potent determinants of an increase in the number of new primary care physicians, Alpert and Charney (1, p.7) recognized the important role of the medical school in this process. To improve the preparation of medical students for careers in primary care, they recommended (1, p.62) that teaching and curricula be modified to incorporate the following elements:

a. "... criteria for selecting students who will be suitable candidates for careers in primary medicine practice."

b. "... an overall program for primary care education at the undergraduate and graduate levels."

c "... sites for primary care education under (the medical school's) auspices."

Beginning in the fall of 1974, the University of Rochester School of Medicine and the Genesee Valley Group Health Association cooperated to design, implement and evaluate a course of instruction in primary care for undergraduate medical students in the spirit of these recommendations.

At that time there were three competing prepaid health care delivery systems available in the Rochester area: an independent professional association, a prepaid group practice based in a number of urban neighborhood health centers, and the Genesee Valley Group Health Association (GVGHA) - a prepaid group practice based at the Joseph C. Wilson Center. It was felt that involving all or some of these community resources could improve the teaching of primary care delivery systems.

The resulting project had two distinct phases, one for first year and the second for fourth year medical students. The first phase of the project which is reported here, was developed in the context of a course offered by the Department of Preventive Medicine and Community Health during the Spring semester, 1975.

Objectives and Biases: The objectives of the project's first phase were design, apply and evaluate a curriculum centered around a semester long series of HMO based experiences for a limited number of students. It was postulated that such a curriculum would produce: (1) acquisition of knowledge about primary care and the doctor-patient relationship; (2) knowledge of simularities and differences among a variety of modes of structuring health care delivery, and (3) an effect on the development of career identity and student career choice plans.

In designing such an educational experience a number of background issues and biases came into focus. The first to be considered was timing. Many faculty believed that the earlier the exposure, the greater the impact on career orientation and subsequent career choice. However, other faculty planners felt that first year students would derive only a limited benefit from exposure to patients at the HMO. In their judgement, the students had insufficient knowledge of both the basic sciences and clinical methods to fully appreciate clinical problems. Another issue was duration: the bias of some faculty was that thirteen half-day experiences would not create revolutionary changes in the career plans of students.

Still another consideration was structure. Frequently clinical learning experiences are unstructured and are dependent upon a variety of unpredicted and unplanned circumstances such as the run of patients encountered at any time period, the assignment of primary care physicians to serve as preceptors who must also maintain their patient contact responsibilities, and the different roles assigned to students in various health care settings. Could the educational experience be made more even and predictable for all groups of students?

Furthermore, objectives of primary care teaching are often vaguely articulated. Are these specific or unique things to observe and learn about primary care compared to traditional specialty based health care? Faculty of traditional departments often disagree on this issue with faculty based in family medicine or at the HMO.

Description of the Program: Cognitive and affective objectives were defined. These included mastery of organizational and operational definitions of both the structure and personnel of primary care delivery systems. They also included detailed analysis and description of the processes whereby patients encountered and were served by the HMO. Affective objectives, derived from a number of structured as well as unobstrusive measurements, included students' attitudes toward a variety of personnel encountered, and toward their experience of observing and participating in primary care.

The course met one-half day per week for thirteen weeks. Each meeting consisted of three phases. The first 45 minutes individual students rotated through each of 11 units in the HMO, interviewing the head of each unit. Following a brief lunch period, the group reconvened for a seminar which presented the bulk of the pedagogic content of the course. Seminars were a combination of lecture by a content expert and discussion involving the students.

Following the one hour seminar, groups of three students dispersed to observe their physician preceptors at work with patients. This observation period lasted from one-half hour to several hours. In addition to these organized activities, each student was assigned a patient to follow through the duration of the course. The student was responsible for presenting a detailed case history of the patient.

Using retrospective interviews of 1st and 4th year medical students, Plovnick (2) found that both primary care experiences and role models were influential factors in the choice of primary care career. The program reported here structured experiences which would allow students a maximum amount of direct contact with both health care providers and patients. This direct experience was to interact with the more abstract content presented in the seminars. The HMO's clinics, laboratories, administrative offices all became sites of teaching as well as patient care. The entire HMO staff was informed that the project was an important part of the ongoing activities of the HMO and were enlisted as ad-hoc instructors in their own area of activity.

Evaluation Design: A major constraint placed upon the evaluation of the project was the necessity of constructing a design which would not interfere with the pattern of instruction. As such, random assignment of students to groups was considered undesirable since it would interfere with the student's self-determined pattern of interest. This initial lack of comparability among groups weakened the power of the evaluation design from the viewpoint of systematic research. However, it strengthened the design from the viewpoint of representative research (3), thereby increasing its generalizability. The curriculum developed here will be applied in circumstances similar to our own, that is where students have an expressed personal interest in HMO's. Therefore, subjects chosen by self-selection were more comparable to those students with whom the curriculum will untimately be used than if they were chosen by random selection.

The resultant evaluation design was a non-equivalent control group model with pre- and post-testing.(4) For comparison purposes, three groups of students were tested. Group I were the 12 students at GVGHA's Wilson Health Center. Group II, called related, were 10 students participating in similar activities at other prepaid primary care organizations. Group III, called non-related, were 11 students serving at chronic care and social service facilities.

The two basic goals of the evaluation design were first to quantify the cognitive and affective effects of the curriculum; and second to analyze correlations between demographic/personal characteristics and outcome measures to identify possible predictors of cognitive achievement or affective change.

Data: Personal characteristics assessed for later correlation were: sex, home town size, physician parentage, undergraduate major and Medical College Admission Test (MCAT) score profile including the four areas of verbal, quantitative, general knowlege and science and the Edward's Personal Preference Schedule which measures 15 normal personality characteristics.

Student attitudes were assessed by:

1. An Osgood (5) type semantic differential which asked students to evaluate, as well as rate the potency and activity of the concepts of HMO, primary care physician, medical school, nurse and medical specialist.
2. A career choice questionnaire which asked students to select preferences of career type, practice type and specialty type.
3. A semi-structured interview with which the evaluator inquired about the student's reaction to the course's content, teaching and impact on their career choice.

Student knowledge was assessed in the areas of:

1. General concepts of primary care including definitions of primary care, family medicine, HMO, Urgent Visit Clinic and Prepaid Group Practice.
2. The functions of health care providers including primary care physician, nurse practitioner, medical specialist, staff nurse, medical social worker, medical secretary, medical receptionist, patient advocate.
3. The contrasting structures of two types of health maintenance organizations including financing, organizational hierarchy, marketing, hospitalization, and legal basis.
4. The events of the physician-patient encounter.

At the completion of the course, all students completed an activity summary in which they tallied:

1. Number of patient meetings that they had had during the semester within the context of the course.
2. Whether or not they had, as the result of their task force, developed an in-depth patient contact.
3. The number of meetings with health care professionals.
4. Whether or not they had developed an in-depth contact with one or more health professionals.

In addition to testing and interviewing, the project evaluator observed all seminars and rotations through the service units and several patient visits. This level of involvement was necessary to complement and validate the other sources of evaluative information.

Results: Analysis of covariance found significant between and within group differences for evaluation of the HMO by the GVGHA task force on the semantic differential. No other differences at the .01 level were revealed for the remainder of the semantic differential.

(Table 1)

Chi-square analysis of the pre- and post-career choice questionnaires used the .05 level as the criterion of significance. For career type, at pre-test a large proportion of the GVGHA group expressed a preference for general practice. At post-test this proportion did not change. However collapsing the two control groups in a pre vs post chi-square comparison revealed a shift towards general practice which was small but significant. For practice type, specifically HMO based practice, there was a small but significant positive shift within the GVGHA group. For specialty type, student selections of family practice, pediatrics and internal medicine were combined into a single primary care category. At pre-test, the membership of the related group was significantly more inclined toward these primary care specialties than the GVGHA group or the non-related group. However, at post-test, the proportions of the other groups selecting these specialties had increased, so that the differences were no longer significant.

(Table II)

Analysis of covariance with subsequent t-tests revealed significant pre-post differences at the $P \leq .01$ level for the GVGHA group alone on two knowledge variables: general knowledge of primary care concepts and the structure of health maintenance organizations. Analysis of the other knowledge variables, the activities of primary care staff and events of the doctor/patient relationship revealed small but non-significant gains for all groups.

(Table III)

Analysis of variance among groups and Tukey's honestly significant difference test for between group comparisons were used to analyze the summaries of student activity. Overall, the GVGHA group had more patient meetings, more in-depth contact and more contacts with health care professionals than the comparison groups. The program succeeded in bringing students into contact with patients and care providers.

(Table IV)

Relative to the second objective of the evaluation, the identification of demographic/personality predictors, Pearson correlation co-efficients were computed for these student characteristics and all outcome measures across all subjects. An analysis of all correlations exceeding the .01 confidence level indicated that students who have a high need for dominance as measured by the Edward's Personality Preference Schedule tended to rate the concept of the primary care physician as relatively low in power or potency. In similar fashion, students with high need for change tended to rate the concept of the primary care physician as low in activity. Home town size was also negatively correlated with students' concept of the activity of the primary care physician. These and the remaining characteristics and their correlations contributed to a general profile of an agressive, highly intelligent, science oriented, medical student from an urban environment who tended to view the medical specialist positively and saw primary care as a less interesting, less intellectually challenging, less important career.

(Table V)

The final two sources of evaluative information, the evaluator's observations and the semi-structured interview at the conclusion of the course verified the more formally derived information presented here.

Analysis and Comment: As anticipated, the HMO based students demonstrated real gains in their knowledge of and attitude toward Health Maintenance Organizations. Also as anticipated, the experience produced only a limited number of shifts in individual career plans. The career choice results for all three groups showed a trend toward varying forms of primary care. But only the GVGHA group framed this choice of primary care in the HMO context. These results are interesting since all members of the related group were also involved in other forms of prepaid group practices.

We suggest the causal bases for this more focused HMO preference among the GVGHA students can be found in their knowledge growth and their HMO/patient related activities. Analysis of the knowledge variables clearly indicated that knowledge of the conceptual underpinnings and day-to-day operation of prepaid group practice was effectively conveyed to the students. Interviews of the GVGHA students confirmed that their contact with patients and providers demonstrated the challenges and satisfactions of the primary care career.

Although testing revealed the GVGHA students' mastery of the conceptual information presented in the structured presentations, it is their less clearly demonstrated mastery of the concepts presented in the unstructured portions of the experience which may have greater implications for medical education. It was the unstructured experiences which presented that bulk of material relevant to the students' knowledge of the events of the doctor/patient relationship. In this area, students showed great interest but little gain in knowledge. First year students have yet to master the full range of prerequisite basic medical sciences. They have had no exposure to pathology, microbiology or pharmacology. As a result, they are probably unable to infer and understand the component processes of the doctor/patient relationship such as the physician's interpretation of the primary data, clinical reasoning and decision making. The comments of one of the medical students in the GVGHA group supports this insight. He stated that although he found his primary care experience surprising in its intellectual challenge, it also served to emphasize his need to master basic science material to be effective in the role of the primary care physician.

The relationship between curriculum and ultimate career choice is part of a larger process whereby the evolving physician develops his professional identity. Erikson (6) suggests that an individual's identity evolves through a process of experimentation, crystallization, rejection and reformulation. In this process, the individual in effect "tries on" a succession of identities and roles, each in succession affecting and being affected by the others in the sequence. Even after the individual rejects a role as unsuited, an appreciation or an understanding of that role remains which affects his subsequent choices as well as his overall career perspective.

Such a conceptualization of the development of the physician's identity negates many of the concerns regarding the question of indoctrinating medical students toward a particular career choice. If experiencing a variety of roles and adopting a series of tentative identities is a necessary process in the formation of a mature professional identity then medical education should recognize that the advocacy of a variety of career types within the educational experience is a positive benefit to the medical student. This logic suggests that this advocacy should not be a bland presentation but instead should be presented with all of the enthusiasm and detail necessary to induce students to "try on" a variety of roles, perspectives and career plans in the course of their undergraduate experience.

The danger of indoctrination is further mitigated by the recognition that students are not passive subjects but are reactive participants in the learning process. As such, they will critically analyze as well as respect or reject the role models they observe. Students will filter, select, defend themselves, and test the roles with which they are presented against their own personal ideals and their own developing conceptualization of what it means to be a physician.

We recommend on the basis or our experience in this project that student work in primary care settings should not be allowed to continue in its traditional pattern of loose planning and uncontrolled execution. Simply placing students on their own in the primary care environment, a situation similar to the related group in this project, is not enough. When planned, executed and evaluated with the rigor of the best medical school courses, HMO based experiences or other primary care experiences can contribute to student learning. When they are not so planned, executed and evaluated, they produce frustration and serve to reinforce the weak intellectual image from which primary care suffers.

In their review of research on career choice Held and Zimet (7) report that career preferences expressed by first year students have low predictive value. The students in this project must therefore be followed to assess their ultimate career choice. Such outcomes will be informative. But the press to achieve contemporary health manpower goals should not obscure the essential function of the university: to aid the development of its students toward their full, self-defined potential. In this sense, no matter what the outcomes in terms of career choice anything learned here or any attitudes changed, no matter how transient, will not be completely lost. These outcomes have become a documneted part of the educational progression of twelve developing physicians. Intimate exposure to and knowledge of modes of health care delivery is in itself a valid phase in the educational evolution of medical students, regardless of any demonstrated effect on ultimate career.

TABLE 1

Summary of Significant Results - Seven Point Osgood Semantic Differential Scale applied to Primary Care related concepts (Ancova controlling for pre-test with subsequent t-test analyses of differences)

Variable	F		t-Test				
			Pre		Post		
HMO:		Group	Mean	SD	Mean	SD	t
Evaluation	11.06**	GVGHA	5.49	.804	6.40	.598	4.30**
		Related	5.72	.829	5.70	.621	-0.10
		Non-Related	5.27	.770	5.27	.711	0.0

**P $\leq$ .01

Non-Significant Variables:

HMO: Potency, activity

Evaluation, Potency, Activity Ratings of: Primary care physician, medical school, nurse, medical specialist

TABLE 2

Career Choice Related to Primary Care (chi square test)

Variable:

Career Type:
(Genrl. Prac.)

Pre

	1^o	Other	
GVGHA	4	8	12
Related	1	9	10
Non-Related	0	10	10
	5	27	32

X^2 4.945
$P \leq .05$

Post

	1^o	Other	
GVGHA	4	8	12
Related	2	8	10
Non-Related	3	7	10
	9	23	32

X^2 .5046
P = NS

Practice Type:
(HMO Prac.)

Pre

	1^o	Other	
GVGHA	1	11	12
Related	1	9	10
Non-Related	0	10	10
	2	30	32

X^2 .9951
P = NS

Post

	1^o	Other	
GVGHA	3	9	12
Related	0	10	10
Non-Related	0	10	10
	3	29	32

X^2 5.5167
$P \leq .05$

Specialty Type:
(Fam. Prac.,
Peds., Int.)

Pre

	1^o	Other	
GVGHA	2	10	12
Related	7	3	10
Non-Related	4	6	10
	13	19	32

X^2 6.43
$P \leq .05$

Post

	1^o	Other	
GVGHA	4	8	12
Related	7	3	10
Non-Related	5	5	10
	16	16	32

X^2 2.933
P = NS

Career Type:
(Genrl. Prac.)

Group: Collapsed Controls

	Pre	Post	
1^o Care	1	5	6
Other	19	15	34
	20	20	

$X^2 = 5.32$
$P \leq .05$

TABLE 3

udent Knowledge of Concepts Related to HMO's and Primary Care (Ancova
ntrolling for pre-test with subsequent t-test analysis of differences)

**p ≤ .01

riable: F

) Organization 13.28**
ximum score: 16)

	Pre		Post		
Group	Mean	SD	Mean	SD	t
GVGHA	1.75	3.22	7.58	4.25	4.42**
Related	1.82	1.66	0.91	1.45	-2.09
Non-Related	2.00	2.00	4.00	4.23	2.19

mary Care F
eneral 8.19**
ximum score: 20)

	Pre		Post		
Group	Mean	SD	Mean	SD	t
GVGHA	4.92	2.23	9.25	2.49	5.69**
Related	6.64	2.11	6.45	1.44	-.35
Non-Related	5.55	1.51	6.45	2.95	1.15

mary Care F
taff 1.51 (NS)
ximum score: 24)

	Pre		Post	
Group	Mean	SD	Mean	SD
GVGHA	8.08	2.02	11.08	3.03
Related	8.55	3.20	9.45	5.50
Non-Related	8.55	2.70	9.00	3.26

tor/Patient
elationship F
ximum score: 14) 1.09 (NS)

	Pre		Post	
Group	Mean	SD	Mean	SD
GVGHA	4.92	1.78	6.92	2.91
Related	3.63	1.80	5.00	2.29
Non-Related	5.64	1.69	6.81	1.89

TABLE 4

Summary of Student Activities (Ancova among groups, Tukey's HSD Test between)

$*P \leq .05$
$**P \leq .01$

Variable:

Number of Patient Mtgs. F 8.75**

Group	N	Mean	SD
GVGHA	12	24.0	9.8
Related	10	4.2	3.0
Non-Related	11	13.4	16.0

HSD Test:

GVGHA > Related*

In-Depth Patient Contact: F 12.1
(yes = 1, No = 0)

Group	N	Mean	SD
GVGHA	12	.75	.45
Related	10	.10	.32
Non-Related	11	.09	.30

HSD Test:

GVGHA > Related*
GVGHA > Non-Related*

Number of Contacts w/Health Care Professionals F 9.9**

Group	N	Mean	SD
GVGHA	12	20.1	12.5
Related	10	15.1	7.0
Non-Related	11	4.5	4.7

HSD Test:

GVGHA > Non-Related*
Related > Non-Related*

In-Depth Contact w/Health Care Professionals F 10**
(Yes = 1, No = 0)

Group	N	Mean	SD
GVGHA	12	1.0	0.0
Related	10	.6	0.5
Non-Related	11	.27	0.4

HSD Test:

GVGHA > Non-Related*

TABLE 5

Summary of Significant Results - Correlations of demiographic and personal characteristics (predictor variables) with outcome measures (dependent variables) across all subjects (Pearson Correlation Coefficient, all $P \leq .01$)

Predictor Variable	Dependent Variable	Direction of Correlation
EPPS dominance	Primary care physician - potency	negative
EPPS change	Primary care physician - activity	negative
Home town population	Primary care physician - activity	negative
EPPS affiliation	Medical school - evaluation	negative
MCAT verbal	Medical specialist - evaluation	positive
Home town population	Medical specialist - evaluation	positive
EPPS succorance	Number of patient meetings	negative
EPPS change	Number of HCP meetings	negative
MCAT science	Importance of primary care	negative
MCAT verbal	General concepts of primary care	positive
Home town population	Events of physician/patient encounter	negative

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Resource Paper No. 12

EVALUATION INSTRUMENTS*

A. Knowledge/Opinion Questionnaire

B. Career Choice Questionnaire

C. Student Activity Summary

D. Course Evaluation Form

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* From the University of Rochester Final Report,
Project to Develop Curriculum for Physician Training in HMOs

Date ____________________
Name/Number ____________________
Undergrad Major ____________________
Home Town Population ____________________

MASTER*

KNOWLEDGE/OPINION QUESTIONNAIRE

1° Care - General

1. Define briefly the following terms:

(4) a. Primary care: *first contact care; availability; continuing responsibility for management; basis of pre-paid group practice.*

(4) b. Family medicine: *a primary care specialty; combines medicine, peds, ob/gyn, surgery; contrasted to family care process; debate over who should provide family care.*

(4) c. Health Maintenance Organization: *Another name for prepaid group practice; organization providing comprehensive health services; enrolled population; restrictive legislation.*

(3) d. Urgent Visit Clinic: *Subsystem to provide care; no appointment necessary; recognizes appointments can interfere with health care.*

(5) e. Pre-paid group practice: *Voluntary association of professionals; prepayment of premium; comprehensive medical care; group at risk; dual choice of member.*

1° Care - Staff

2. Describe briefly the function of the following health care personnel:

(4) a. Primary care physician: *a physician who gives first contact care; has responsibility for continuity; high availability; basis of prepaid group practice.*

(3) b. Nurse practitioners: *R.N., additional diagnostic skills, independent professional.*

(2) c. Medical specialist: *M.D., specialist training.*

(3) d. Staff nurse: *Functions under direction; supportive rather than independent role; R.N. or L.P.N.*

(3) e. Medical social worker: *A social worker in a health care organization; coordinates community agencies; works to resolve social and environmental problems at patient's site of habitation.*

(2) f. Medical secretary: *A secretary who understands and communicates in the language of medicine; organizes patient charts and records.*

(4) g. Medical receptionist: *Acts as patient advocate; receives the patient; coordinates flow of patients in the system; schedules patients.*

(3) h. Patient advocate: *A spokesperson for a patient or group of patients; acts to represent the interests of patients; interprets the health care system to patients.*

*Answers to questions in Italics

HMO Organization

3. Describe and contrast briefly the structure of two types of health maintenance organizations as to: financing, organizational hierarchy, marketing, hospitalization, legal basis.

HMO types

(16) Prepaid group practice; Independent professional associations (medical foundation)

Financing:
a) *prepayment on part of client*
b) *contract for services vs. fee for services from premium pool*
c) *initial backing from government or private insurers*

Organizational Hierarchy: *Decentralized collection of independent professionals*

Marketing: *Same*

Hospitalization: *Same*

Legal Basis: *Federal Law*

Quality Control: *Group at risk and peer review versus no risk, peer review only*

Doctor - Patient Relationship

4. Describe in general terms what takes place in the physician/patient encounter, including: expectations each party holds for the other, kinds of data the physician uses, how a diagnosis is made.

Expectations:

1. *The patient approaches a physician with his problems and solicits his help to resolve them.*
2. *The patient's need for help and the physician's capability to help are the bases for initiating a relationship.*
3. *The physician defines explicitly and implicityly the conditions under which he can best provide help.*
4. *The patient attempts to establish the conditions under which he can best convey his needs and be assured of help.*
5. *Communication and a relationship are established.*

Kinds of Data:

6. *Observation of patient's behavior and conduct during interview and examination.*
7. *Interview.*
8. *Physical examination.*
9. *Special diagnostic examinations.*

Doctor - Patient Relationship

4. Diagnosis:

10. *The patient's report of perceived physical and/or behavioral changes, and the physician's observations of behavioral and physical characteristics are utilized for first order hypotheses.*
11. *Hypothese are tested by further interview, physical examination and laboratory special diagnostic procedures.*
12. *The patient's problems are identified and classified (Weed).*
13. *Specific diagnoses are made.*
14. *Physician expects patient to believe diagnosis and follow instructions.*

5. The following are a list of medical specialty areas which you might pursue. Please rank them in order of your personal preference, from most favored _1_ to least favored _10_.

____ Psychiatry
____ Internal Medicine
____ Oncology
____ Pediatrics
____ Orthopedics
____ Pathology
____ Family Medicine
____ Cardiology
____ Preventive Medicine
____ Obstetrics/Gynecology

6. The following is a list of health care characteristics. Please rank them in order from most important _1_ to least important _10_.

____ Competency
____ Accuracy
_*x*_ Availability
____ Frequency
____ Economy
_*x*_ Consistency
____ Safety
_*x*_ Comprehensiveness
____ Equity
____ Diversity

x Salicency Components

7. The following is a list of professionals. Please rank them in order of your perception of their importance from most important _1_ to least important _10_.

___ High school teacher
___ Lawyer
_x_ Medical receptionist
___ Cardiologist
_x_ Nurse practitioner

___ Dentist
_x_ Internist
_x_ Nurse
___ Biochemist
___ Electrical engineer

x Saliency Components

8. For each of the following, please complete a semantic differential indicating your perception of that role. For example, if you perceive the role of nurse practitioner as active, but not very active, you would check the form this way:

Active ___ ___ _x_ ___ ___ ___ ___ Passive

a. Health Maintenance Organization

GOOD ___ ___ ___ ___ ___ ___ ___ BAD
MILD ___ ___ ___ ___ ___ ___ ___ INTENSE
ACTIVE ___ ___ ___ ___ ___ ___ ___ PASSIVE
INTERESTING ___ ___ ___ ___ ___ ___ ___ UNINTERESTING
WORTHLESS ___ ___ ___ ___ ___ ___ ___ VALUABLE
STRONG ___ ___ ___ ___ ___ ___ ___ WEAK
SLOW ___ ___ ___ ___ ___ ___ ___ FAST
COLORLESS ___ ___ ___ ___ ___ ___ ___ COLORFUL
FAIR ___ ___ ___ ___ ___ ___ ___ UNFAIR
SHALLOW ___ ___ ___ ___ ___ ___ ___ DEEP
RESTLESS ___ ___ ___ ___ ___ ___ ___ QUIET

b. Primary Care Physician

GOOD ___ ___ ___ ___ ___ ___ ___ BAD
MILD ___ ___ ___ ___ ___ ___ ___ INTENSE
ACTIVE ___ ___ ___ ___ ___ ___ ___ PASSIVE
INTERESTING ___ ___ ___ ___ ___ ___ ___ UNINTERESTING
WORTHLESS ___ ___ ___ ___ ___ ___ ___ VALUABLE
STRONG ___ ___ ___ ___ ___ ___ ___ WEAK
SLOW ___ ___ ___ ___ ___ ___ ___ FAST
COLORLESS ___ ___ ___ ___ ___ ___ ___ COLORFUL
FAIR ___ ___ ___ ___ ___ ___ ___ UNFAIR
SHALLOW ___ ___ ___ ___ ___ ___ ___ DEEP
RESTLESS ___ ___ ___ ___ ___ ___ ___ QUIET

c. Medical School

GOOD ____ ____ ____ ____ ____ ____ ____ BAD
MILD ____ ____ ____ ____ ____ ____ ____ INTENSE
ACTIVE ____ ____ ____ ____ ____ ____ ____ PASSIVE
INTERESTING ____ ____ ____ ____ ____ ____ ____ UNINTERESTING
WORTHLESS ____ ____ ____ ____ ____ ____ ____ VALUABLE
STRONG ____ ____ ____ ____ ____ ____ ____ WEAK
SLOW ____ ____ ____ ____ ____ ____ ____ FAST
COLORLESS ____ ____ ____ ____ ____ ____ ____ COLORFUL
FAIR ____ ____ ____ ____ ____ ____ ____ UNFAIR
SHALLOW ____ ____ ____ ____ ____ ____ ____ DEEP
RESTLESS ____ ____ ____ ____ ____ ____ ____ QUIET

d. Nurse

GOOD ____ ____ ____ ____ ____ ____ ____ BAD
MILD ____ ____ ____ ____ ____ ____ ____ INTENSE
ACTIVE ____ ____ ____ ____ ____ ____ ____ PASSIVE
INTERESTING ____ ____ ____ ____ ____ ____ ____ UNINTERESTING
WORTHLESS ____ ____ ____ ____ ____ ____ ____ VALUABLE
STRONG ____ ____ ____ ____ ____ ____ ____ WEAK
SLOW ____ ____ ____ ____ ____ ____ ____ FAST
COLORLESS ____ ____ ____ ____ ____ ____ ____ COLORFUL
FAIR ____ ____ ____ ____ ____ ____ ____ UNFAIR
SHALLOW ____ ____ ____ ____ ____ ____ ____ DEEP
RESTLESS ____ ____ ____ ____ ____ ____ ____ QUIET

e. Medical Specialist

GOOD ____ ____ ____ ____ ____ ____ ____ BAD
MILD ____ ____ ____ ____ ____ ____ ____ INTENSE
ACTIVE ____ ____ ____ ____ ____ ____ ____ PASSIVE
INTERESTING ____ ____ ____ ____ ____ ____ ____ UNINTERESTING
WORTHLESS ____ ____ ____ ____ ____ ____ ____ VALUABLE
STRONG ____ ____ ____ ____ ____ ____ ____ WEAK
SLOW ____ ____ ____ ____ ____ ____ ____ FAST
COLORLESS ____ ____ ____ ____ ____ ____ ____ COLORFUL
FAIR ____ ____ ____ ____ ____ ____ ____ UNFAIR
SHALLOW ____ ____ ____ ____ ____ ____ ____ DEEP
RESTLESS ____ ____ ____ ____ ____ ____ ____ QUIET

9. Describe those factors which motivated you to select your community medicine task force. Include your goals and expectations.

CAREER CHOICE QUESTIONNAIRE

1. Present year in medical school (circle one):

1st 2nd 3rd 4th Internship Other ______

2. Check the type of medical career to which you believe you will ultimately devote all or most of your time. (Check one)

___ General practice

___ Specialty practice

___ Research and/or teaching

___ Combination of specialty practice, research, and/or teaching.

___ Other (Specify) ______________________________

3. Indicate the type of practice in which you plan to engage. (Check one).

___ Individual private practice
___ Partnership practice
___ Private group practice
___ HMO practitioner
___ Hospital consultant (except federal hospitals)
___ Full-time teaching and research (practice confined to medical school hospital(s))
___ Part-time teaching and research, part-time separate private or partnership practice.
___ Part-time teaching and research, part-time separate group practice
___ Federal government service
___ Public health (with or without teaching and research)

4. If you plan to enter any type of career other than unspecialized practice, please indicate the area in which you plan to specialize. If your specialty area is not listed below, but can be considered a sub-category within one of the fields that is listed, please check that field. Please check only one field.

___ Family Medicine

___ Anesthesiology

___ Basic medical sciences

___ Dermatology

___ Internal Medicine: (check (a) or (b))
  ___ a) subspecialty (specify) __________
  ___ b) primary care internal medicine

___ Neurology

___ Obstetrics/gynecology

___ Ophthalmology

___ Otolaryngology

___ Pathology/clinical pathology

___ Pediatrics: (check (a) or (b)) ___a) subspecialty (specify) ________________

___b) primary care pediatrics

___ Physical medical and rehabilitation

___ Proctology

___ Psychiatry/neuropsychiatry

___ Public health and preventive medicine

___ Radiology

___ Surgery - general

___ Surgery - neurological

___ Surgery - orthopedic

___ Surgery - plastic

___ Surgery - thoracic

___ Urology

___ Cardiology

___ Other (specify) ________________________________

Name ______________________________

Task Force ______________________________

Date ______________________________

AAMC PRIMARY CARE STUDY

ACTIVITY SUMMARY

1. With how many patients have you had contact of any kind (presented in class, rounds, home, office) so far in your task force assignment?

2. Please list the type(s) of settings, number (or frequency) and average duration of your interactions with patients

Setting	Number of Meetings	Average Duration
____________________	____________	____________
____________________	____________	____________
____________________	____________	____________
____________________	____________	____________
____________________	____________	____________

3. If you have developed a relationship with a patient(s) in some depth (two or more meetings), please briefly describe the patient, his/her problem, your activities relative to this patient, any significant knowledge you have gained, and any role you have played in the process of providing care to them.

4. Please list the types of health care professionals (HCP) with whom you have interacted in your task force assignment. Indicate the setting, number (or frequency), and average duration of these interactions:

Professional	Setting	Number of Meetings	Average Duration

5. If you have worked with a HCP(s) on more than one occassion during your task force, please describe your interaction(s) in terms of: (a) purpose, (b) setting (c) your role, (d) opportunities to apply your scientific knowledge, and (e) what you learned about the HCP's role.

AAMC Primary Care Study

COURSE EVALUATION FORM

Date ______________________

Student ______________________

Group ______________________

1.0 Teaching:

1.1 Describe the instructor's style of presenting ideas.

1.1.1 Your preceptor's:

1.2 Were the class presentations well organized?

1.2.1 The clinical experiences?

1.3 Was your preceptor accessible?

1.4 Were your instructor's/preceptor's expectations clear?

2.0 Content:

2.1 How appropriate were the topics covered?

2.1.1 The clinical experiences?

2.2 Was the course content well organized?

2.3 Was the level of detail appropriate?

2.4 What additional topics should be covered?

2.4.1 Deleted?

Date __________ Group ________

3.0 Attitudes:

3.1 Did the course effect your attitude toward choice of career? Why?

3.1.1 Toward Primary Care? Why?

3.1.2 Toward medical education?

3.2 Do you think you will choose additional electives in primary care?

3.3 Did you choose to participate in the second year ISP program?

3.4 What are the most important characteristics of primary care for the patient?

3.4.1 For the physician?

4.0 Overall Evaluation:

4.1 What were the best aspects of the experience?

4.2 What were the worst aspects?

Resource Paper No. 13

PROPOSED EVALUATION INSTRUMENTS *

EXHIBIT	1A.	Student Log Recording Form
EXHIBIT	1B.	Sample Computer Prepared Summary Report Of Student Clerkship Experiences
EXHIBIT	2.	Student Progress Report
EXHIBIT	3.	Student Course Evaluation
EXHIBIT	4.	Student Assessment of Preceptor and Training Site
EXHIBIT	5.	Preceptor Progress Report
EXHIBIT	6.	Course Achievement/Grade Report
EXHIBIT	7.	Patient Feedback to Students
EXHIBIT	8.	Site Visit Report

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* From Appendix K of the University of Washington Final Report Project to Develop Curriculum for Physician Training in HMOs

APPENDIX 3 : PROPOSED EVALUATION INSTRUMENTS

EXHIBIT - 1a. STUDENT LOG RECORDING FORM

EXHIBIT - 1b. SAMPLE COMPUTER PREPARED SUMMARY REPORT OF STUDENT CLERKSHIP EXPERIENCES

EXHIBIT - 2. STUDENT PROGRESS REPORT

EXHIBIT - 3. STUDENT COURSE EVALUATION

EXHIBIT - 4. STUDENT ASSESSMENT OF PRECEPTOR AND TRAINING SITE

EXHIBIT - 5. PRECEPTOR PROGRESS REPORT

EXHIBIT - 6. COURSE ACHIEVEMENT/GRADE REPORT

EXHIBIT - 7. PATIENT FEEDBACK TO STUDENTS

EXHIBIT - 8. SITE VISIT REPORT

EXHIBIT 1 a. STUDENT LOG RECORDING FORM

Surname of Student	Initials	Course No.	Date of Experience Mo. Day Yr.	Preceptor's Initials	Department	Ongoing	New	Longitudinal	Site of Experience Office	Hospital	House Call	Nursing Home	ER	Primary	Assisted	Observed	Diagnosis Code	System A	System B	Procedure Code	Community and Management
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	16 17	18 19 20	21 22 23 24 25 26	27 28 29 30	31 32	33	34	35	36	37	38	39	40	47	48	49	52 53 54 55 56	57 58	59 60	61 62 63 64 65	66 67 68

PROBLEM	SYSTEM(S)*

- 3 -

CLINICAL PROCEDURES, COMMUNITY CONTACTS, PRACTICE MANAGEMENT

* SYSTE 1 HEENT 2 NS 3 Endocrine 4 Cardio-r iratory 5 Gastro-intestinal 6 Genetics

Please describe any noteworthy impressions, anecdotes, triumphs, crisis, etc....

EXHIBIT 1b: SAMPLE COMPUTER PREPARED SUMMARY REPORT OF STUDENT CLERKSHIP EXPERIENCES

(Abbreviations Explained on Previous Page)

SITE OF EXPERIENCE					LEVEL OF STUDENT RESPON.			ONGOING OR NEW		FREQ.	DIAGNOSIS CODE AND NAME
O	H	HC	NH	ER	PR	AS	OBS	O	N		
1	1	0	0	0	0	0	2	0	2	2	500 PAP SMEAR
3	0	0	0	0	2	1	0	1	2	3	511A ADULT RIN. PHYSICAL
1	0	0	0	0	1	0	0	0	1	1	511B PEDIATRIC PHYSICAL
1	0	0	0	0	0	1	0	1	0	1	352A PRE/POST PART. EXAM
0	3	0	0	0	3	0	0	0	3	3	351 ROUTINE DELIVERY
1	0	0	0	0	1	0	0	0	1	1	722 ADOLES. COUNSELING
1	0	0	0	0	0	1	0	0	1	1	586 FAMILY PLANNING
1	0	0	0	0	1	0	0	1	0	1	704A MARITAL COUNSELING
1	0	0	0	0	0	1	0	0	1	1	283 HERNIA
1	0	0	0	0	1	0	0	0	1	1	242 SORE THROAT
0	4	0	0	0	7	2	1	1	9	10	240 UPPER RESP. INFECT.
0	1	1	0	0	1	3	4	1	7	8	183 OTITIS
0	1	0	0	0	1	0	0	0	1	1	263 NOSE BLEED
0	1	0	0	0	0	1	0	1	0	1	241 INFLU. SYNDROME
2	0	0	0	0	0	0	2	1	1	2	398 RASH-NOT SPEC.
4	4	0	0	0	1	2	5	6	2	8	372 BURNS
2	0	0	0	0	2	0	0	2	0	2	405 RHEUM. ARTHRITIS
1	3	0	0	0	2	2	0	1	3	4	480 SPRAIN
0	4	0	0	0	2	2	0	3	1	4	425 LOW BACK PAIN SYND.
1	0	0	0	0	0	0	1	1	0	1	400 CERVICAL PAIN
3	0	0	0	0	1	2	0	2	1	3	086 ASTHMA
1	0	0	0	0	1	0	0	0	1	1	170 CONJUNCTIVITIS
1	2	0	0	0	1	2	0	3	1	4	262 DYSPNEA
1	0	0	0	0	0	1	0	0	1	1	267 UNDIFFERENT. COUGH
2	2	0	0	0	1	3	0	4	0	4	247 BRONCHITIS
3	1	0	0	0	1	3	0	4	0	4	255 CHRN. OBSTR. PULMON.
1	4	0	0	0	4	1	0	2	3	5	246 PNEUMONIA OR OTHER
1	2	0	0	0	2	1	0	2	0	2	130X ANXIETY
1	1	0	0	0	1	1	0	1	1	2	147 HEADACHE
1	1	0	0	0	0	2	0	2	0	2	134 DEPRESSION
0	4	0	0	0	2	1	1	3	1	4	155 STROKE
1	0	0	0	0	0	1	0	1	0	1	158 SEIZURE
1	0	0	0	0	0	1	0	1	0	1	195 CONCUSSION
2	0	0	0	0	0	2	0	1	1	2	200 DIZZINESS
2	3	0	0	0	2	2	1	4	1	5	306 ABDOMINAL PAIN

APPENDIX K: PROPOSED EVALUATION INSTRUMENTS

EXHIBIT 2: STUDENT PROGRESS REPORT

Please describe briefly how the Clinical Clerkship is going from your point of view. We are especially interested in (1) how you see your relationship with your preceptor developing (2) any problems you think are distracting from your experience.

Please rate the following and comment:

Responsibility ☐ enough ☐ not enough ☐ too much

Comment:

Supervision ☐ enough ☐ not enough ☐ too much

Comment:

Pace ☐ ok ☐ too fast ☐ too slow

Comment:

Exposure and experience with problems ☐ enough ☐ not enough

Comment:

Continuity experiences ☐ adequate ☐ not adequate

Comment:

Exhibit 2 (Continued)

Family orientation ☐ enough , ☐ not enough

Comment:

Patient acceptance ☐ ok ☐ problems

Comment:

Office staff acceptance ☐ ok ☐ problems

Comment:

Is this experience meeting your expectations?

Please comment on the seminars.

APPENDIX K : PROPOSED EVALUATION INSTRUMENTS

EXHIBIT 3: STUDENT COURSE EVALUATION

DATE____________________________

NAME____________________________
(Print)

COURSE EVALUATION BY STUDENTS

CLINICAL CLERKSHIP

To the Student:

Your evaluation of this clerkship experience will be very helpful to the faculty in continually improving this clerkship. Thank you in advance for your participation.

Check one box for each question:

Are you in your third____ or fourth____ year?

What quarter did you take this clerkship? Fall____ Winter____ Spring____
Summer____. Year, 19____.

Who was (were) your primary supervisor/s:________________________________

____

DIRECTIONS:

Please circle the number of the scale (1=low and 5=high) which best represents the extent to which this clerkship facilitated your learning with respect to the course objectives and each major experience undertaken.

There are a few open-ended questions at the end of the questionnaire for additional comments.

I. Course objectives:

A. Please rate the extent to which the course objectives were:

Not communicated	1	2	3	4	5	communicated
Unclear	1	2	3	4	5	clear
Irrelevant	1	2	3	4	5	relevant
Unrealistic	1	2	3	4	5	realistic

II. To what extent did this course provide you opportunity to acquire knowledge and skills in the areas outlined below (representing course objectives)? Rate each item on the scale. If you are unable to evaluate an item, indicate why in the space provided.

CLINICAL GOALS	Low				High	Cannot evaluate
A. To gain knowledge and skills of common medical problems, in terms of:						
1. Which are common important problems	1	2	3	4	5	________________
2. Natural course of these problems	1	2	3	4	5	________________
3. Techniques of problem identification, diagnosis and treatment	1	2	3	4	5	________________
4. Commonly applied preventive techniques for these problems	1	2	3	4	5	________________
5. Human interactions in the immediate environment which are important in dealing with these problems	1	2	3	4	5	________________
B. To gain skill in:						
1. Interviewing patients	1	2	3	4	5	________________
2. Making appropriate judgments in terms of:						
a. Clinical problem solving by selection of history, physical examination and laboratory data in terms of common high probability of problem entities	1	2	3	4	5	________________

B. 2 (Cont'd)

		Low				High	Cannot evaluate
b.	Referral to other medical disciplines versus continued management	1	2	3	4	5	
c.	Recommending consultation	1	2	3	4	5	
d.	Referral to specific agencies	1	2	3	4	5	
e.	The interval of follow-up and the mode of follow-up - the use of phone, return appointment, or by use of other personnel	1	2	3	4	5	
3.	Maintaining clinical records which aid in problem-solving and provide continuity by:						
a.	Organization of data which is readily communicable to others	1	2	3	4	5	
b.	Organization to assist in formulating diagnostic and therapeutic plans	1	2	3	4	5	
4.	Effective use of the telephone to record clinical data, manage patients, make referrals, and make consultations	1	2	3	4	5	
5.	Appropriate prospective analysis of risks to the health of patients by:						
a.	Identifying risks for the patient's immediate future	1	2	3	4	5	
b.	Knowledge of measures that might reasonably reduce those risks	1	2	3	4	5	
C.	To gain skill and knowledge in providing comprehensive, continuous health care on a longitudinal basis.	1	2	3	4	5	

EXHIBIT 3 (Continued)

PRACTICE MANAGEMENT GOALS	Low				High	Cannot evaluate
To gain:						
A. Knowledge of business applications in practice	1	2	3	4	5	______
B. Knowledge of the types of office personnel and their role and contribution to the family practice setting	1	2	3	4	5	______
C. Ability to establish appropriate priorities in approach to providing medical care	1	2	3	4	5	______
D. The "art" of personnel, staff, and peer relations	1	2	3	4	5	______
E. Ability to outline realistic plans that provide time for self, family and community involvement while providing continuous comprehensive care for patients	1	2	3	4	5	______
F. Ability to apply the principles of cost effectiveness in health care delivery	1	2	3	4	5	______
COMMUNITY GOALS						
To gain:						
A. Ability to identify the major health hazards in the community	1	2	3	4	5	______
B. Ability to identify the appropriate role of the family physician with respect to these hazards	1	2	3	4	5	______
C. Knowledge of persons other than in the hospital or the clinic in the community whose functions relate to health or medical care	1	2	3	4	5	______
D. Skill in ability to work with other agencies	1	2	3	4	5	______

HMO EXPERIENCE GOALS	Low				High	Cannot evaluate
To gain:						
A. Knowledge of the function, theory, organizational structure, and legal and economic aspects of HMO's	1	2	3	4	5	______
B. Knowledge of the differences between HMO's and fee-for-service settings in the use of common medical practices, including:						
1. Telephone management of patients	1	2	3	4	5	______
2. Telephone consultation	1	2	3	4	5	______
3. Patient referral	1	2	3	4	5	______
4. Walk-in emergency service	1	2	3	4	5	______
5. Management of the health care team	1	2	3	4	5	______
C. Knowledge of the advantages and disadvantages to the consumer of prepaid medical service vs. medical insurance	1	2	3	4	5	______

III. Please rate the extent to which the following activities were of value to you in helping you meet the objectives of the course and your own expectations. First, circle those which you experienced. Then, rate the quality of each circled.

A. Clinical Experiences	Rate those circled				
	Low				High
1. Orientation	1	2	3	4	5
2. Initial patient work-ups	1	2	3	4	5
3. Follow-up of patients	1	2	3	4	5
4. Labor and delivery	1	2	3	4	5
5. Major surgery	1	2	3	4	5
6. Minor surgery	1	2	3	4	5
7. Counseling patients	1	2	3	4	5
8. Counseling families of patients	1	2	3	4	5

		Low				High
9.	Utilizing consultants	1	2	3	4	5
10.	Patient record keeping	1	2	3	4	5
11.	Emergency room care	1	2	3	4	5
12.	On call rotations	1	2	3	4	5
13.	Performing special procedures in the office or hospital (e.g., proctoscopies)	1	2	3	4	5
14.	Rounds at the hospital	1	2	3	4	5
15.	Staff meetings at the office	1	2	3	4	5
16.	Library and other learning resources	1	2	3	4	5
17.	Informal conferences with your CCU faculty	1	2	3	4	5
18.	Formal teaching seminars with your CCU faculty	1	2	3	4	5
19.	Other: ______________________________	1	2	3	4	5
20.	Other: ______________________________	1	2	3	4	5

B. Community Experiences

MEDICAL

1.	Alcohol and Drug Abuse Programs	1	2	3	4	5
2.	County Medical Society Meeting	1	2	3	4	5
3.	Hospital Staff or Committee Meeting	1	2	3	4	5
4.	Medical Staff Meeting (Non-hospital)	1	2	3	4	5
5.	Mental Health Group or Clinic	1	2	3	4	5
6.	Other local community health agency or program	1	2	3	4	5
7.	Planned Parenthood Clinic	1	2	3	4	5

EDUCATIONAL

8.	Local college	1	2	3	4	5
9.	Local high school or grade school	1	2	3	4	5
10.	Teaching of allied health personnel	1	2	3	4	5
11.	Teaching of lay people	1	2	3	4	5

EXHIBIT 3 (Continued)

	Low				High
COUNTY					
12. County Health Office, Public Health Nurse	1	2	3	4	5
13. Welfare Department	1	2	3	4	5
CITY					
14. Chamber of Commerce	1	2	3	4	5
15. City Government meetings	1	2	3	4	5
16. City Maintenance	1	2	3	4	5
17. Community meeting on curent issues with other non-health related agencies or groups	1	2	3	4	5
18. Local Law Enforcement agencies	1	2	3	4	5
19. Local Court System	1	2	3	4	5
20. Local Industry	1	2	3	4	5
21. Other informal consultation with individuals (not patients)	1	2	3	4	5
22. Service Clubs (Rotary, Lions, etc.)	1	2	3	4	5
23. Special Programs for local minority groups, e.g., migrants, natives	1	2	3	4	5
24. Other: ______________________	1	2	3	4	5
25. Other: ______________________	1	2	3	4	5

C. Practice Management Experiences	Low				High
Work with office manager, faculty or others regarding:					
1. Answering Services	1	2	3	4	5
2. Billing procedures	1	2	3	4	5
3. Office or hospital audits	1	2	3	4	5
4. Personnel management, hiring/firing	1	2	3	4	5
5. Continuing Medical Education activities	1	2	3	4	5
6. Record keeping systems and forms	1	2	3	4	5

EXHIBIT 3 (Continued)

	Low				High
7. Referral systems & forms	1	2	3	4	5
8. Scheduling patients	1	2	3	4	5
9. Use of dictating equipment	1	2	3	4	5
10. Use of telephone	1	2	3	4	5
11. Other: ______________________	1	2	3	4	5
12. Other: ______________________	1	2	3	4	5

IV. Please indicate how comfortable you felt handling the following types of patients or procedures:

	Inadequate				Confident
Well patients seeking health maintenance care					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Children with non-emergency problems					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Children who were quite sick or injured					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Obstetric patients in normal pregnancy, labor and delivery					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Adults with non-emergency problems					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Adults who were quite sick or injured					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5

	Inadequate				Confiden
Performing diagnostic and therapeutic procedures, such as proctoscopy, casts, etc.					
- at the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Performing minor surgery					
- in the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Treatment of emergency room patients					
- in the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5
Counseling patients and families regarding health maintenance and psycho-social problems					
- in the beginning of the clerkship	1	2	3	4	5
- at the end of the clerkship	1	2	3	4	5

V. What were the most beneficial experiences of this clerkship?

VI. What were the least valuable aspects of the clerkship? Were there any important problems for you?

VII. Do you have any specific suggestions for the faculty?

VIII. What was your general attitude towards this clerkship?

IX. Did this clerkship affect your career aspirations in any way? Yes ___ No___
If so, how?

X. Do you plan to take further clerkships? Yes ___ No ___. If so, where?___________

APPENDIX K : PROPOSED EVALUATION INSTRUMENTS

EXHIBIT 4: STUDENT ASSESSMENT OF PRECEPTOR AND TRAINING SITE

Date:______________________________

Dates of Clerkship:____________________

Location of Clerkship:_________________

YOUR NAME (Optional)____
(Print)

PHYSICIAN FACULTY'S NAME:____
(Print)

A. Please indicate your perception of the quality of teaching and supervision you received from this faculty member by rating his/her performance in the following areas: (circle one number on each scale.)

		Poor		Average		Superior
1.	Clinical Competence	1	2	3	4	5
2.	Quality of Teaching	1	2	3	4	5
3.	Interest in Teaching	1	2	3	4	5
4.	Awareness of current literature	1	2	3	4	5
5.	Relationships with patients	1	2	3	4	5
6.	Relationships with students/res.	1	2	3	4	5
7.	Attention to community problems	1	2	3	4	5
8.	Ability to manage professional responsibilities, personnel, office, etc.	1	2	3	4	5
9.	Effectiveness in maintaining quality control with reference to patient management.	1	2	3	4	5
10.	The extent to which this faculty member was willing to give you responsibility.	1	2	3	4	5

EXHIBIT 4 - (Continued)

1. On a typical day, about how much time does your preceptor spend with you._____

2. Was the amount of time your preceptor devoted to you (in your opinion):

_____completely inadequate

_____minimal

_____adequate

_____generously adequate

_____too much

3. Does your preceptor have any qualities which you find highly desirable for a teacher of this course? Please describe:

4. Does your preceptor have any qualities which you find undesirable for a teacher of this course? Please describe:

5. Are there characteristics about your preceptor's office (staff, space, patient mix, pace of work, partners, location, etc.) which you find highly desirable in a teaching site for this course? Please describe:

6. Are there characteristics of your preceptor's office which you find undesirable in a teaching site for this course? Please describe:

7. Overall, how would you rate your preceptor as a teacher in this course:

_____1. poor

_____2. barely adequate

_____3. average

_____4. good

_____5. outstanding

EXHIBIT 4 - (Continued)

8. Overall, how would you rate your preceptor's office as a training site for this course?

_____1. poor

_____2. barely adequate

_____3. average

_____4. good

_____5. outstanding

9. COMMENTS:

APPENDIX K: PROPOSED EVALUATION INSTRUMENTS

EXHIBIT 5: PRECEPTOR PROGRESS REPORT

TO: CLERKSHIP PRECEPTORS

FROM: COURSE COMMITTEE

SUBJECT: KEEPING US INFORMED

Please tell us in a few sentences how the Clinical Clerkship is progressing from your point of view. We are especially interested in knowing about (1) how you think your student is doing and (2) any problems that may be emerging.

We would also like to know how the preceptorship has affected your practice so far.

a. Productivity loss is about ____% or ____ patients during the morning when the student is there.

b. The student spends about ______ (minutes, hours) per week in my practice.

c. In addition to the student-contact time, I am spending about _______ minutes per week planning, organizing or otherwise preparing for the student.

d. Any other ways, positive or negative, in which having a student has effected you or your practice?

Name ________________________________

APPENDIX K: PROPOSED EVALUATION INSTRUMENTS

EXHIBIT 6: COURSE ACHIEVEMENT/GRADE REPORT

STUDENT NAME ____________________

COURSE ACHIEVEMENT/GRADE REPORT

I. Clinical Goals	Unsatis-factory	Marginal	Average	Good	Superior	Not evaluated or do not care to rate
A. Exhibits knowledge and skills of:						
1. Which are common important problems	1	2	3	4	5	______
2. Natural course of these problems	1	2	3	4	5	______
3. Techniques of problem identification, diagnosis and treatment	1	2	3	4	5	______
4. Commonly applied preventive techniques for these problems	1	2	3	4	5	______
5. Human interactions in the immediate environment which are important in dealing with these problems	1	2	3	4	5	______
B. Exhibits skill in:						
1. Interviewing patients	1	2	3	4	5	______
2. Appropriate judgment in:						
a. Clinical problem solving by selection of history, physical examination and laboratory data in terms of common high probability of problem entities.	1	2	3	4	5	______
b. Referral to other medical disciplines versus continued management	1	2	3	4	5	______
c. Recommending consultation	1	2	3	4	5	______
d. Referral to specific agencies	1	2	3	4	5	______
e. The interval of followup and the mode of followup - the use of phone, return appointment, or by use of other personnel	1	2	3	4	5	______

	Unsatisfactory	Marginal	Average	Good	Superior	Not evaluate or do not car to rate
3. Ability to maintain clinical records which aid in problem solving and provide continuity by:						
a. Organization of data which is readily communicable to others	1	2	3	4	5	______
b. Organization to assist in formulating diagnostic and therapeutic plans	1	2	3	4	5	______
4. Effective use of the telephone to record clinical data, manage patients, make referrals, and make consultations	1	2	3	4	5	______
5. Appropriate prospective analysis of risks to the health of patients by:						
a. Ability to identify risks for the patient's immediate future	1	2	3	4	5	______
b. Knowledge of measures that might reasonably reduce those risks	1	2	3	4	5	______
C. Exhibits skill and knowledge in providing comprehensive, continuous health care on a longitudinal basis.	1	2	3	4	5	______
II. Practice Management Goals						
A. Has a general knowledge of business applications in practice.	1	2	3	4	5	______
B. Has knowledge of the types of office personnel and their role and contribution to the family practice setting.	1	2	3	4	5	______
C. Exhibited abilities to establish appropriate priorities in approach to providing medical care.	1	2	3	4	5	______
D. Exhibited appropriate "art" in personnel, staff, and peer relations.	1	2	3	4	5	______
E. Exhibited ability to outline realistic plans that provide time for self, family and community involvement while providing continuous comprehensive care for patients.	1	2	3	4	5	______

EXHIBIT 6 (Continued)

	Unsatis-factory	Marginal	Average	Good	Superior	Not evaluated or do not care to rate
F. Exhibited ability to apply the principles of cost effectiveness in health care delivery.	1	2	3	4	5	______

I. Community Goals

A. Able to identify the major health hazards in the community.	1	2	3	4	5	______
B. Able to identify the appropriate role of the family physician with respect to these hazards.	1	2	3	4	5	______
C. Exhibits a knowledge of persons other than in the hospital or the clinic in the community whose functions relate to health or medical care.	1	2	3	4	5	______
D. Exhibits skill in ability to work with other agencies.	1	2	3	4	5	______

Note special abilities, accomplishments or problems that the student displayed in the course.

EXHIBIT 6 (Continued)

GENERAL ATTRIBUTES*

		Unsatis-factory	Marginal	Average	Good	Superior	Not Evalua or do not care to rat
I.	Body of Medical Knowledge	1	2	3	4	5	______
II.	Aptitude	1	2	3	4	5	______
II.	Educability	1	2	3	4	5	______
IV.	Motivation	1	2	3	4	5	______
V.	Personal Attributes						
	A. Dependability.	1	2	3	4	5	______
	B. Initiative and interest.	1	2	3	4	5	______
	C. Likeability.	1	2	3	4	5	______
	D. Communication and relationships with patients.	1	2	3	4	5	______
	E. Composure and ability to function under stress.	1	2	3	4	5	______
	F. Organization of time and commitments	1	2	3	4	5	
VI.	Potential of becoming a competent physician.	1	2	3	4	5	______

NOTE: It is understood that ratings given in this section will be based on subjective impressions and judgments of the faculty evaluator.

ny additional comments:

IRCLE ONE: Honors Pass Fail

FACULTY MEMBER______________

APPENDIX K: PROPOSED EVALUATION INSTRUMENTS

EXHIBIT 7: PATIENT FEEDBACK TO STUDENTS

Dear ____________________,

You recently saw a medical student, Mr./Ms. _____________, in my office. In an effort to help students see themselves as patients see them, I would appreciate your answering six questions as honestly and constructively as you can. This information will be seen by the student for his or her own benefit and will not be used for grading purposes.

Thank you.

☐ Sorry, but I can't remember the student well enough to answer.

1. About how many times have you had contact with the student? ___________
2. Do you (or would you) feel comfortable discussing your medical problems with the student? (Please elaborate.)
3. Do you (or would you) feel comfortable discussing personal or family problems with the student? (Please elaborate.)
4. Are there any qualities or characteristics about this medical student which you find very appealing or important in the doctor you would choose? (Please describe.)
5. Are there any qualities or characteristics about this medical student which you think he or she should try to change or improve in order to become more like the ideal doctor for you? (Please describe.)
6. Is there anything else you think this student should know from a patient's point of view?

Thank you for your help. Your signature is optional.

Sincerely,

Dr. ____________________

APPENDIX K: PROPOSED EVALUATION INSTRUMENTS
EXHIBIT 8: SITE VISIT REPORT

SITE VISIT AGENDA

1. Meet with Preceptor and Student in office.

Discuss	a) Longitudinal patient contacts	Look at print out
	b) Corr. with basic science courses	review
	c) procedures in office practice	supervision
	d) office management	responsibility
		other

2. Watch student with patient

   Observe: smoothness of relationship among student, preceptor and patient, review of charts, etc.

3. Chat with other office personnel

   Discuss 1) their involvement with student
   2) mechanics of integrating students into office routine
   3) solicit suggestions

4. Feedback and impressions from Course Committee to preceptor.

5. Site visit report filed here.

6. Follow-up chat with student.

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Resource Paper No. 14

MEASURING THE COSTS AND BENEFITS
OF
MEDICAL EDUCATION IN THE HMO SETTING

By

Christine E. Bishop
Assistant Professor of Economics
Boston University School of Management

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Measuring the Costs and Benefits of Medical Education in the HMO Setting[1]

Christine E. Bishop

Innovative training programs for medical students and residents are currently being designed and mounted in health maintenance organization (HMO) settings. These programs will add a new dimension to the education of these students and residents, who will be able to learn at first hand how care is provided under prepaid goup practice plans. The programs will also open new opportunities for the HMOs. However, direct involvement in medical education is expected to have costs as well as benefits for an HMO, and both costs and benefits must be evaluated before an HMO begins a training program. When all relevant aspects of the program are taken into account, it may be predicted that the value of benefits minus costs is negative, so that the program has a net cost[2] to the HMO and should not be undertaken; or that the program has a positive net benefit to the HMO and should be adopted. Clearly the determination of net cost or net benefit must rest on more than prediction of money expenditures for the operation of the training program. The value of other costs and benefits are relevant as well. It is important that the individuals responsible for deciding whether an HMO should undertake an education program (referred to here as "the HMO decisionmaker"[3]) have enough information to make a wise choice; otherwise, very costly programs may be started which cannot be continued, and others with a net benefit for the HMO may be mistakenly rejected. The HMO decisionmaker must determine which aspects of the proposed education program have an impact on the HMO's operation; how these impacts are to be measured; and how these costs and benefits are to be weighed against each other to determine whether the program is on balance worthwhile for his HMO.

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[1] This paper was prepared for the Association of American Medical Colleges HMO education project. It draws upon the work of the medical school-HMO teams participating in this project, as reported at a conference September 29, 1975; the presentations of Gregory Pawlson, Richard Watkins, and Robert Lawrence were especially helpful. This paper has benefitted from comments on earlier drafts by Michael Lawson, Harold Luft, and Marcel Infeld.

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[2] Definitions of technical terms defined and used in the text are reviewed in a glossary in the appendix.

It is the purpose of this paper to discuss these questions, in order that more useful information may be provided to the HMO decisionmaker considering an education program. The focus here is on prediction of costs and benefits from the point of view of the HMO. It is hoped that the methods developed by the AAMC project and applied for evaluation of its experimental programs can also aid other HMOs in predicting the costs and benefits of involvement in education. In Section I below, the costs and benefits relevant to the HMO are defined, and a discussion is presented concerning how these may be used to determine whether a training program is worthwhile for an HMO. In Section II, potential sources of costs and benefits are discussed, and means are proposed for gauging their impact.

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[3] Depending on the way the HMO is constituted, the decision may be made by an administrator, the medical staff, a board of directors, the membership at large, or some combination of these. For ease of exposition, the individual or group responsible for the decision will be referred to as "he".

I. Issues in Cost-Benefit Analysis for an HMO

A decision about undertaking a training program will be based on evaluation of costs and benefits that are relevant to the HMO. These must be defined in light of the HMO's goals and objectives: a cost is any impact of the program which hinders the HMO in the achievement of its objectives, while a benefit is a positive effect on the HMO. When costs and benefits are measured in the same terms (for example in dollars) costs can be subtracted from benefits to find a net benefit figure. Equivalently, the net cost of a program is calculated by subtracting benefit from cost. By definition, a program with a positive net cost has a negative net benefit; these concepts are analogous to loss and profit for a firm. Since it may be very difficult to measure all impact of a program in the same terms, we may have to be satisfied with presenting the decisionmaker with measurements and estimates of a program's impact on a number of dimensions, leaving him with the problem of evaluating how much each cost and benefit is worth to the HMO.

It should be emphasized at the outset that analysis of the costs and benefits of a teaching program will be done on an incremental basis: the situation before and after the introduction of the program is to be compared, and its net impact, which may be positive (a net benefit) or negative (net cost) is determined.

A. Relevant Costs and Benefits.

The costs and benefits that are important to the HMO decisionmaker are restricted to those that have an impact on the achievement of HMO objectives. The term "cost-benefit analysis" is often employed to mean the determination of social costs and benefits for use in deciding whether a new public program should be introduced.[4] Ideally, the social benefits of a program are weighed against its social costs. If the benefit to society exceeds the cost, the program is worthwhile. However, the individual firm or organization can also use cost-benefit analysis, when the analysis is geared to its own goals and needs. In the case at hand, the HMO decisionmaker implicitly follows the rule that benefits to the HMO must equal or exceed its costs; both costs and benefits measured in the light of the HMO's objectives. It is not appropriate to expect him to consider all the costs and benefits to society or the costs and benefits to other organizations, like medical schools or other HMOs. For example, the following may be seen as potential impacts of the training program, and thus candidates for a list of cost and benefit measures; however, only some of them are relevant to the HMO decision.

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[4] For a comprehensive review of cost-benefit analysis, see Leonard Merewitz and Stephen Sosnick, The Budget's New Clothes: A Critique of Planning-Program Budgeting and Benefit Cost Analysis; Chicago: Markham, 1971.

1. change in dollar outlays made by the HMO for labor, supplies, plant, and equipment
2. change in the attitudes of current and potential physician and other staff members toward working at the HMO
3. changes in the value to current HMO members of the health care provided
4. change in the rate of growth of the HMO
5. change in dollar outlays made by the medical school involved in the program
6. changes in the dollar and time outlays made by students for transportation to their training site
7. change in student's satisfaction with their medical education program
8. diversion of residency candidates to HMO training from other specialty training, or from other alternatives
9. change in the attitudes of future physicians toward work in an HMO setting
10. change in the attitudes of future physicians toward provision of primary care.

Items 1 through 4 clearly involve potential costs and benefits that the HMO decisionmaker should evaluate; the remainder are simply not relevant to an internal HMO decision about program adoption, although they may be relevant to other decisionmakers. For example, changes in the dollar and time outlays of medical students, skills and attitudes they acquire and their satisfaction with the total medical education program may have an impact on the cost to society of physician training, and may also have an impact on the achievement of medical school objectives; however, these aspects of the training program are not costs and benefits to the HMO, and are not relevant to its decision about undertaking an education program.

B. Arriving at a Net Benefit (Net Cost) Measure.

Ideally, the various costs and benefits should be measured in similar terms, so that the HMO decisionmaker can determine whether benefits exceed costs. This can only be done if we know what these benefits and costs are worth to the HMO. This would not be such a difficult problem if the HMO were attempting to maximize profits; predictions of revenue gains or losses and predictions of increases or decreases in expenses would put the analysis directly into dollar terms, so profit or loss due to the program could be calculated. However, non-profit HMOs probably have different objectives. The relative weights placed on various benefits and costs in determining whether benefits exceed costs must depend on the HMO's goals. For example, suppose that the teaching activity increases expenses so that yearly premium per member must increase by a dollar, while the physicians providing care in the HMO are overwhelmingly in favor of the teaching program; there is no change in the quality or convenience of care as perceived by the members. How should the money cost to members be weighed against the increase in satisfaction to the physician staff? If the HMO is run as a physicians' cooperative, so that benefits to the physicians are highly valued, it is likely that the teaching program will be accepted as having a net benefit to the HMO.

However, if the HMO is run to maximize the benefit to members, the teaching program may well be rejected as having too great a cost to members for the benefit they receive.

Other aspects of the HMO's goals become important when other potential costs and benefits are considered. A teaching program might raise costs now while enhancing long run growth prospects; or a program might appear to be costless while requiring so much extra effort from physicians and other staff that turnover increases and salaries have to rise. Members may dislike the presence of medical student observers, while the staff enjoys having them around; members may value the fact that their HMO is now affiliated with a medical school, while complaining that the teaching program is driving up premium costs. Unless strong assumptions are made about how the HMO values these conflicting costs and benefits, it will not be possible to make a technical determination about whether benefits exceed costs. However, this by no means implies that benefits and costs that are difficult to measure and evaluate should be ignored as "subjective" and somehow unreal. When presented with a set of predictions about the various positive and negative impacts of a program, the decisionmaker will come up with a yes or no answer; he implicitly makes the tradeoffs among the conflicting costs and benefits, even if he cannot specify a figure for the net cost or net benefit of the program to the HMO.

In the discussion of specific costs and benefits in Section II, an underlying assumption has been made about the objectives of the HMO:

that it is maximizing net benefits to members. This implies that if members' yearly premium rises by a dollar, there must be a compensating dollar's worth of benefits to members; if staff satisfaction is increased by the program, this is a benefit to members insofar as it is translated into lower salary costs or recruiting costs, and thus into lower premium costs, or into higher quality of care for members. The HMO decisionmaker is assumed to choose to start a training program only if benefits to members exceed costs to members. Of course, if a particular HMO has a different objective, benefits and costs will be measured and evaluated in a somewhat different light. However, the list of probable sources of costs and benefits will not be much different from the list that follows. A decisionmaker with a different set of objectives for his HMO could use the same information, although he would evaluate it differently and could arrive at a different decision.

II. Costs and Benefits of Education Programs

Following the rule that the HMO should undertake a program if its benefit exceeds its cost requires incremental analysis, which compares the "before" and "after" pictures of HMO operation, without and then with the training program: what has changed? do the changes have a net beneficial effect? In this section, potential impacts induced by a training program will be discussed. The most straightforward impact of education is increases in dollar expense due directly to the program, for example residents' salaries and expenditures on teaching materials and extra furniture for program participants. No less real is the cost of changes in the use of resources which the HMO would be purchasing anyway: no increase in dollar expenditure occurs, but conference rooms are used for students rather than for staff meetings, administrators plan programs and give lectures in time they would otherwise spend on administrative tasks, and so on. This shift in resource use must reduce HMO output, if these resources were being used at full capacity before the teaching program was introduced. The question is, what is the worth to the HMO of the resources diverted from other uses into teaching? The most interesting aspect of this question concerns the production of patient care without and with teaching: clinical teaching goes on simultaneously with the production of care, so that it is not possible to distinguish between resources going into teaching and those going into medical care for the patient. This does not mean that clinical teaching is costless: it is likely that the output of a given set of health care resources will be different before and after teaching is introduced. For example, less care may be produced because the physician or nurse takes time to discuss cases with the student observer, or more care may be produced when a resident is added to the existing health care team. This increase or decrease in the productivity of health care inputs must be evaluated. Other potential impacts of teaching programs are changes in recruiting costs and staff satisfaction. Finally, it must be recognized that care without teaching may be worth more or worth less to HMO members than care with teaching; the members' perceptions of the amenities, convenience, and quality of care may change positively or negatively.

A. Dollar expenditures for residents' salaries and educational supplies.

Residents' salaries will increase the expenses of the HMO. A medical education program may require the purchase of specialized instructional materials and equipment, like books, reprints, xeroxed handouts, audiovisual aids, and classroom or study area furniture. These outlays add directly to HMO costs.

Data required: total residents' salaries and fringe benefits; quantity and price of materials and supplies; amortized value of equipment purchased for educational purposes.

B. Diversion of resources to use in teaching.

When resources are diverted from the production of health care to teaching, comparison of the situation at the HMO without and with teaching (incremental analysis) will show that some output is lost. It is assumed here that the HMO will have to replace the output lost in order to maintain its level of health care, so that output losses are valued at their incremental replacement cost. This is a part of the cost of teaching activity.

1. Space used for classroom teaching. The teaching program will increase the current cost of providing care for the HMO's membership insofar as it diverts conference rooms, study areas, and lounges

from other productive uses. Ideally, an estimate of the cost of replacing output lost is required. However, a rough estimate of the value of space diverted from other uses might be calculated using the proportion of time the students use the conference rooms and so on and the cost of building space per unit time.

An interesting question is raised when space is used in teaching that has no other use for the HMO. In some experimental programs, students' nonclinical activities have not displaced administrative or direct production activity, so that the cost to the HMO of serving its membership is not increased by student conferences, lectures, and the like. In other words, the cost of this space is zero at present. Nevertheless, it may still be appropriate to count a portion of the HMO's space cost as a cost of the teaching program, since in the long run, with optimal use of building assets, more space will be required with the teaching program than without it. It should be emphasized that these costs would not affect a short-run decision to start a training program.

Data required: amount of building space used by students; current utilization by HMO activities; student utilization rate; estimated cost of space per unit time.

2. Staff time used for classroom teaching. Physicians, nurses, administrators, and other personnel may be diverted from their usual tasks to provide classroom teaching, i.e. lectures and discussions with students. Some staff may also be involved in planning and administration of the teaching program. When these manpower

inputs have highly specialized functions within the HMO, this time may have a very high value in terms of production lost: when the chief administrator and head nurse take time away from tasks that only they can do, the operation of the HMO must suffer. The value of these specialized inputs is probably more than they are paid, but at least their salary rates can serve as minimum estimates of the value of their time. Other manpower inputs used for classroom teaching can be seen as more replaceable; the value of production lost when a staff physician or nurse meets with students can be restored by hiring a part-time physician or nurse to fill in. The cost of these inputs is their salary rate.

Some teaching occurs outside the clinical setting and outside the time that staff would ordinarily be paid. If physicians choose to devote lunch hour time to students, or stay after hours to talk with them, it might be argued that this time should not be valued at the wage rate, becuase it need not be replaced at this rate; when physicians choose to spend their "personal time" in this way, it in no way diminishes the product of the HMO or adds to its expenditures on inputs. However, this time should not be seen as free in the long run. If the HMO implicitly includes this kind of "volunteer" effort in its physician job description, it will eventually have to be paid for. If more rewarding uses of personal time appear, or if the teaching program expands to include physician-teachers who are not so philanthropic, either the teaching program will fall in quality or costs to the HMO will indeed rise. Predictions about the long run value of personal time inputs to a particular HMO should be made by the decisionmaker on the scene, but should probably be set near the current salary rate.

Data required: number of personnel engaged in classroom teaching and administration by type; hours of student contact, preparation and administration; salaries. A distinction may be made between "regular" and "personal" time if the use of personal time resources is believed to have a lower cost for the HMO.

3. Clinical Teaching: production gains or losses. The most important impact of an education program on the HMO is likely to be due to production losses or gains in the clinical teaching setting. A set of inputs (for example, 1 physician, 1 nurse, ¼ receptionist, 2 examining rooms, etc.) ordinarily produce a certain average number of patient visits in a session of a certain length. The addition of a student observer or participant to this health team may decrease or increase the number of visits produced per session. The most straightforward way to evaluate the cost of a loss of production is to find the incremental cost of replacing the lost visits. If visits per session drop from 14 to 12, and the incremental cost of adding an extra session (not counting expenses that vary directly with patients served) is $100, the cost of lost production in each student session is approximated by:

$$\frac{\$100}{14} \times 2 = \$14.28.$$

Our cost calculations here must consider both the direct cost of adding a session (salary payments of workers directly involved in producing patient care) and variable overhead (additional receptionist time, maintenance of examining rooms in use for one more session, light and heat, etc.). The incremental cost per session does not include costs of marketing, general administration, pharmacy operation, and the like, since these fixed overhead costs are not increased by the addition of an extra session. Supply and variable laboratory expenses, which depend on the number of visits produced rather than on the number of sessions held, are also not included in the incremental cost per session. Thus the measure for the replacement value of lost production is somewhat less than the average total cost per visit.[5]

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[5] Expansion of the numerical example may make this argument more clear. Assume that current membership of 40,000 can be cared for with an average of 2800 visits per week, and average number of visits per session is 14. This implies that 200 sessions per week must be scheduled.

$$\frac{\text{2800 visits per week}}{\text{14 visits per session}} = \text{200 sessions per week}$$

If students participate in 28 of these sessions, visit production in these 28 sessions will be reduced, with total visit production now

$$\underbrace{(200 - 28)}_{\substack{\text{sessions}\\ \text{without}\\ \text{students}}} \times \underbrace{14}_{\substack{\text{productivity}\\ \text{without}\\ \text{students}}} + \underbrace{28}_{\substack{\text{sessions}\\ \text{with}\\ \text{students}}} \times \underbrace{12}_{\substack{\text{productivity}\\ \text{with}\\ \text{students}}} = 2744$$

where the visit production with students present is 12 per session. The HMO is now 56 visits short of its previous weekly level of service. To replace the visits lost due to lower productivity, four sessions must be added:

$$\frac{\text{56 visit deficit}}{\text{14 visits per session}} = \text{4 sessions}$$

If it costs \$100 to add another session, not counting costs that vary with visits, an outlay of \$400 is required to bring the HMO back to its previous service level.

It is important that a distinction be made between costs that vary with visits produced and those that vary with sessions scheduled. If a patient visit on average requires about \$2 worth of supplies, laboratory tests, and drugs, the cost of these inputs for 2800 visits will be \$5600 whether the patients are seen in 200 sessions (without the teaching program) or 204 (with the program).

In like manner, if residents increase the number of visits the health care team can produce, fewer non-teaching sessions will need to be scheduled. Assume that a resident and a physician working together with other direct patient care inputs can produce 20 visits in a session. The value of the six extra visits may be estimated by determining how much they would have cost if produced in a typical session. In the example, the cost saving would be 6 x $7.14 = $42.84. This will eventually be weighed against the stipend paid to the resident, which is included as an increased expense in part A above. The value of the residents' total production may very well exceed their stipends, even when lower productivity in some sessions is taken into account.

If residents see patients on their own, their impact on costs and production can be evaluated in a similar way. Assume that a resident working with a nurse and other inputs can see nine patients in a session. This is an increase in production which the HMO would not have without its teaching activity. Valuing this at its replacement cost of $7.14 per visit, the value is 9 x $7.14 = $64.26. But this increase in production could not occur without expenditure on the other inputs involved; if these cost $40 per session, the resident is making a net addition to production worth $64.26 - $40 = $24.26 per session. This calculation in effect takes into account the fact that the other health care inputs would be more productive working with a staff physician.[6]

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[6] Another way of looking at this is to see the HMO as replacing a regular session with a resident session. The resident combines with $40 worth of inputs to produce 9 visits; paying a staff physician plus the other inputs cost $100, or $60. more, but produced 5 additional visits. The resident has saved the HMO $60. and lost 5 visits, which will cost 5 x $7.14 = $35.70 to produce in a regular session; the HMO is $60. - $35.70 = $24.30 ahead.

It should be noted that the above approach to the costs of lost or gained production assumes that care for the population is being provided efficiently at present, so that a decrease in the number of visits per session must be accompanied by an increase in the number of sessions while an increase in visits provided will allow a decrease in the number of regular sessions.

Since the output of the HMO is not patient visits but care for a population, a more complete productivity measure would consider the number of individuals that can be carried by a typical teaching and a baseline nonteaching health team. This productivity measure would allow for the possibility that teams including students or residents may produce a higher proportion of return visits, so that loss in productivity as measured by members served may be even greater than loss in productivity measured by reduced patient visits. Such a measure would require a baseline count of the number of members cared for by each team, and the change in that number due to a given amount of teaching involvement. If teams including students or residents use more supplies and laboratory tests per patient than do nonteaching teams, the resultant increase in cost should be charged to the teaching program.

Data required: baseline productivity for specific input combinations, measured in terms of patient visits and/or members cared for; productivity of the same input combinations when involved in teaching; incremental cost per session under baseline or standard production methods, not including supplies and tests that vary directly with patients seen; this would require collection of data on salaries for all staff involved, staff input in hours, and allocation of variable overhead costs (examining rooms, equipment, receptionists, heat and light) per session; investigation of possible increases in use of supplies or laboratory tests per patient visit by teaching teams, and cost per teaching session of this excess use.

C. Staff satisfaction and effort

Staff involved in teaching both in clinical and nonclinical settings may gain extra satisfaction from this activity, and may feel that extra effort is required of them. Over the long run these effects are expected to show up in salary offers necessary to attract staff to the HMO. These salary changes will be difficult to predict, but the presence of these effects and their strength can be approximated by surveys of staff. Surveys should include questions about whether staff currently involved in teaching have an overall preference to return to their pre-teaching job content, or prefer the teaching activity; and whether teaching involvement would be a job attribute they would actively seek if they changed jobs.

Data needs: staff surveys to determine changes in effort level and satisfaction level with and without the education program, and to determine how the staff evaluates these changes.

D. Recruiting costs

If teaching activity adds to the general satisfaction and prestige of working at the HMO (in addition to increases in direct personal satisfaction, discussed above in part C) it will be easier to recruit new physicians and other staff, quality of job applicants may rise, salary offers may not be as high as they otherwise would be all else constant, and turnover of staff may fall. In addition, a teaching program allows information to be gathered about particular potential job applicants -- the students and residents themselves. The HMO will face less risk in making a job offer to a physician who has trained there, since the HMO has observed him or her in action, and the physician is better prepared for a future job at the HMO.[7]

Data required: survey of all staff, including those not directly involved in teaching efforts, surveying preferences for working in a teaching institution; survey of students and residents in training to assess whether the applicant pool has expanded; baseline measures of recruiting expenditures and changes over time in these measures.

It is recognized that the costs and benefits to members of changes in staff satisfaction, effort, and recruiting will be difficult to measure in an individual HMO. The HMO decisionmaker considering taking on an education program should at least have information about the direction of probable changes in staff satisfaction, effort, and recruitment, and their importance to HMO costs. Only then can he determine whether net cost savings from this source make the costs of the education program worthwhile, given benefits.

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[7] Recruiting benefit was a major argument for hospital nursing training programs, and studies have shown that hospitals with diploma schools were actually able to make lower salary offers due to this recruiting advantage. (This has changed over time due to shifts in nursing education.)

If both HMOs and HMO medical education programs become more common, it may eventually be feasible to carry out a national cross-section study to determine whether HMOs with teaching programs actually experience reduced staff costs, reduced recruiting costs, and lower staff turnover.

E. Changes in the value of care to members.

The discussion above has focused on the impact of teaching on the costs of providing health care services at an HMO. The net effect of teaching will be to raise or lower the average cost per member, and, if prices are set at average cost, the premium cost per member. Teaching activity may also change the value of the care as perceived by consumers, since care provided by a teaching institution may be seen as a different product from care provided without teaching. If care with teaching is more valuable to members, they would be willing to accept a higher premium cost to support the teaching activity; if teaching reduces the amenities or convenience of care, members will find their wellbeing reduced by the introduction of teaching, unless premium costs can be lowered to compensate for this decrease in the value of care. The impact of teaching on member satisfaction will therefore be a key variable for a decisionmaker working to maximize wellbeing of members.

The direction and amount of change in value to members can be gauged by a number of means. The rate of membership growth may be observed before and after the introduction of teaching, with special attention to any changes in the rate of exit from membership. These observations should at least give an indication of whether consumer willingness to pay for HMO coverage has risen or decreased after the introduction of the program. Surveys of members can provide information about member satisfaction with the program; questions asked about response to increases or decreases in premium prices due to a teaching program. The teaching program may be seen as decreasing the amenities of care by producing a "clinic" atmosphere, invasion of privacy, and/or longer waits for care. The program may increase perceived quality if care connected with medical education is especially respected in the community.

Data required: rates of membership increase and dropout rates before and after the introduction of the teaching program; or interviews or surveys of members, including both users of care and the general membership.

Terms

benefit any impact of the teaching program that increases the HMO's achievement of its objectives.

cost any impact of the teaching program that decreases the HMO's achievement of its objectives.

direct cost costs directly associated with units of output

net benefit the sum of benefits minus the sum of costs when all benefits and costs are measured in the same terms, for example in dollars.

net cost the sum of costs minus the sum of benefits

opportunity cost the value to the HMO of the best alternative use of a scarce resource.

overhead costs costs incurred by the HMO for activities which are not directly associated with particular units of output. Fixed overhead costs do not vary with the level of output; variable overhead costs vary with the level of output.

relevant costs costs that are affected by the decision at hand.

Resource Paper No. 15

COST BENEFIT ANALYSIS

From

Section V of the University of Washington Final Report
Project to Develop Curriculum for Physician Training in HMOs

Resource Paper No. 15

COST BENEFIT ANALYSIS

A. Overview

1. Introduction

Cost accounting is always an issue in curriculum planning. However, as Group Health is principally a health care institution with its first responsibility to its owner-members, any proposed activity which might have a dollar impact must be very carefully scrutinized. A cost study was therefore almost an absolute prerequisite to changes in or even continuance of an educational program which does not obviously directly benefit the Cooperative.

An issue which is not purely "dollar" cost, but which also needed to be considered was that the consumers who might be less aware of obscure administrative costs would have direct, first hand knowledge of adverse effects of teaching and the reallocation of patient care services. This is especially apparent in a closed system where physicians who reduce their patient care effort in order to teach reduce their availability to patients who have contracted for services. The pre-paid consumer will be served, and the result may be that the non-teaching physicians' patient loads may increase as a direct consequence of this reduction by the teaching physician. When these hidden human costs are coupled with the inflationary pressures already present in health services, the suggestion of even continued teaching roles for the medical staff, without thorough considerations of dollar and subjective costs, is likely to be met with vigorous debate if not outright rejection by consumers and/or professionals.

Assigning costs to specific teaching activities is often ignored, but the Group Health - School of Medicine project provided an important arena to confront this issue. It offered both the impetus and the setting in which to approach what in education is becoming the increasingly important economic dictum of maximizing benefits from a fixed resource. This translated into "How much can and should we teach at Group Health?"

2. Methods

In this report cost is construed as any factor causing an increase in expense or effort, or a decrease in satisfaction. The approach used was that of management-based, cost-benefit analysis.

Management analysis, as contrasted to strict accounting or theoretical economic approaches, allows for a practical analysis considering both those costs and benefits readily quantifiable in dollar terms, as well as those costs and benefits which may be of great importance but which cannot be readily assigned an unequivocal dollar cost. For example, the quantifiable costs and benefits include labor, space, materials and income. The non-quantifiable costs and benefits include job-satisfaction, enjoyment, effort, morale, and patient attitudes.

The precise costs and benefits derived from this managment analysis of Group Health teaching are directly relevant only within the framework of the Cooperative. Costs and benefits from the standpoint of Group Health, the School of Medicine, governmental agencies or society at large, are not precisely the same because of differences in the values and need dispositions of these disparate systems. However, for the purposes of this project and its sequels, the subjective costs might be given mutually agreed upon dollar values for negotiation within and between the managements of Group Health and the University.

An input/output model was created to document elements in the pre-paid group which impact upon or are impacted by the teaching process. These were measured in three areas:

-Actual teaching site
-Direct support site
-Group Health as a whole

Under each area the input such as labor, space, and effort, and the outputs such as education and enjoyment were listed (Appendix L, Table I). Methods were developed to practically measure these either quantitatively or qualitatively. The term "practically" is quite important, for there are some quantitative data obtainable only at a cost exceeding their value to the system.

In translating the analysis into educational dollar cost, two problems arose. One was the lack of a readily defined market value on many of the inputs and products of the educational process. The other was perhaps an even greater problem in that there was simultaneous production of more than one product (health care and future physican training) from the input system. The result of this latter factor, termed joint production in economic terms, is that there is no unique cost ascribable to either product. Issues revolving around joint production have generated a geat deal of controversy in previous medical educa-

From Appendix L, Final Report,
University of Washington

TABLE 1

ANALYSIS

A. Cost-Benefit Analysis -- Related to Teaching in Group Health Cooperative

I. Teaching Site

Persons involved: preceptor, nurse, receptionist, student, patient, non-teaching physicians

Items considered (can be increased or decreased by teaching)

Space
Time
Effort
Materials

Income
Education
Enjoyment
Care delivered
(numbers, quality)

II. Support Level

Persons involved: preceptor, nurses, administrators, educational support staff

Items involved

Planning
Administrative
Orientation and indirect instruction

III. Group Health Cooperative as a "Whole"

Personnel involved: employees, consumer-proprietors

Items involved

Factors relating to consumer

- membership cost
- professional reputation
- queing
- net effect of teaching encounters on patient satisfaction
- community service image

Factors relating to staff

- recruitment
- staff turnover
- staff morale

From Appendix L, Final Report,
University of Washington

B. Methodology

I. Interview -- partly structured

Used to collect initial information. Used becuase of small numbers, personal contact afforded, and relative flexability. Especially valuable where largely subjective determinations were involved.

II. Questionnaire

For follow up information and where large numbers were involved.

III. Clinic Records, Logs

Used to provide information on patients seen, cost per visit, hours on job, etc.

IV. Personal Logs

Used to provide additional information on time spent and activities that appeared to have a major impact.

V. Time-Motion

Used to provide detail and to validate logs.

tion cost studies.

There are factors in pre-paid, group practices which to some extent minimize these problems. The primary product of a pre-paid health maintenance organization such as Group Health is health care service. Unlike schools of medicine, research and teaching are secondary activities at best. Also, due to the size of Group Health, the number of different settings in which care is delivered, and their thorough and ongoing accounting system, it is quite possible to look at the same or virtually equivalent patient care service setting in the presence and absence of teaching and evaluate changes in terms of amount and patterns of patient care services delivered. The cost to the Cooperative for teaching at a given site can thus be equated to the value of loss in services. This solution to the joint production problem assumes that patient care services are of highest value to the system and that the value of a given unit of health care is not altered as a function of the presence or absence of teaching.

This form of analysis was applied to both the family practice residency program and to a series of undergraduate clerkships described previously in the curriculum section. In brief, these consisted of:

a) Introduction to Clinical Medicine - Human Biology 413, 422 and 435.
A first year required course series conducted largely at Group Health.

b) Family Medicine Preceptorship - Family Medicine 401.
An elective course primarily for first year students in which approximately one-fourth of the students are taught at Group Health clinics by their medical staff.

c) Family Medicine Continuity Clerkship - Family Medicine 420, 421 and 422.
A second year elective course series which includes Group Health preceptors among the faculty.

d) Independent Field Study - Public Health and Community Medicine 531.
An elective in which students independently arrange for special projects at community health agencies - commonly including Group Health.

Since both first- and second-year Family Medicine clerkships were considered, it was decided to include a third-year clerkship for the purposes of continuity in the cost analysis which follows.

B. MEDICAL STUDENT COURSES

1. Family Medicine Clerkships

Because of their similarity, the three year family practice series has been considered together here. The first year interviewing course and the health services research course are considered separately.

At the clinical teaching site for the three course series, patient care and education are produced jointly. Costs shown in Table V-1 were determined as follows: visits displaced by teaching were measured by comparing the patient visits per day under normal circumstances to the daily patient visit rate when the students were present. This data collection was accomplished by use of clinic logs. The number of visits displaced is normalized to whole clinic days to facilitate comparison among courses taught for both full and partial days at the teaching site. The derived displaced visits were multiplied by the unit labor cost to give the physician cost per student per day. Table V-1 shows that the major cost determinant was the joint cost of physician labor. Physicians are salaried and "full-time", but nurses contract for a standard week and teaching costs incurred through nursing needed also to be addressed. In courses where the physician worked longer hours to produce their normal number of visits per day, the nurses also worked longer. A direct and readily quantitative cost occurred in some instances as nurses claimed overtime pay.

Since a case can be made that use of visit count changes is an incomplete assessment of the impact of students upon a health care delivery setting, an extension of the clinic records study was begun to validate the data, pilot test a method, and gather data regarding the student-preceptor interaction. This portion of the project involved a time/motion study tailored to the ambulatory clinic setting and conducted in a third year elective course in Family Medicine taught at a Group Health satellite clinic (Appendix L).

Table V-2 contains the non-dollar costs and benefits of the three studied Family Medicine experiences reported by physician and nursing staff. No patient satisfaction data is currently available due to delays in obtaining Group Health approval of the methodology and instruments to be used. This portion of the study will be completed at a later time.

TABLE V-I: CLINICAL TEACHING SITE - OBJECTIVE COSTS

Joint Costs (visits displaced)

*Labor	Unit cost	1st. yr. FM	2nd yr. FM	3rd. yr. FM
Physician	$8.77 visit	0 (0)	$52.62 (6)	$35.08 (4)
Nurse	$2.31 visit	0 (0)	$13.86 (6)	$ 9.24 (4)
Materials (linen, injectables)	$ .33 visit	Not applicable		
**Overhead (building, clinic, office, administration, general administration	$2.22 visit	0	$13.32 (6)	$ 8.88 (4)
TOTAL JOINT COST		0	$79.80	$53.20
Direct Costs				
*Labor				
Nurse		$4.50	0	0
Materials (books, tapes, etc.)		0	0	0
Income		0	0	0
Cost Savings		0	0	0
TOTAL COST		$4.50	$79.80	$53.20

All costs are dollars per whole student day, i.e., one student day represents one student present for one full day or two students present for one half-day session, etc.

*labor - joint costs = visits per day displaced x unit cost

**overhead included since it would have to be redistributed to other visits if not accounted here - no overhead is directly assigned to teaching.

TABLE V-2
CLINICAL TEACHING SITE - SUBJECTIVE ANALYSIS

COSTS

	1st. Yr. FM Obs.	2nd. Yr. FM Lim. Part.	3rd. Yr. FM Lim. Part.
a. Time in minutes spent per day beyond normal working hours with no compensation. *			
Physician	30	20	45
Nurse	10	0	0
b. Effort - Number reporting increases/total involved.			
Physician	6/6	3/3	3/3
Nurse	2/5	0/3	0/2
c. Enjoyment - Number reporting decreases/total involved.			
Nurse	1/5	0/3	0/2

BENEFITS

	1st. Yr. FM Obs.	2nd. Yr. FM Lim. Part.	3rd. Yr. FM Lim. Part.
a. Enjoyment - Number reporting increased enjoyment/total involved in course.			
Physician	6/6	3/3	3/3
Nurse	3/5	2/3	1/2
b. Education - Number reporting increases/total involved.			
Physician	6/6	3/3	2/3
Nurse	3/5	1/3	1/2
c. Effort - Number reporting decreases/total involved.			
Nurse	0/5	2/3	0/2

* No increase in personal income was reported by either physicians or nurses. Time was usually reported as representing a reduction in personal time available.

Support site analysis revealed no easily quantifiable costs, for at the individual course level it is difficult to assign direct administrative costs (Table V-3) Four of the most directly involved Group Health administrators estimated that very little time was spent considering any medical student teaching (~ 20 total hours). An additional cost source would be displaced patient care services as a function of scheduling educational planning/administrative meetings during office hours. It was not possible to make a definite determination of the magnitude of this cost source.

As indicated earlier in this report, some objective aspects of the cost/benefits to the Cooperative as a whole from teaching medical students could not readily be studied within the scope of this project. However, interviews with nurses, physicians and administrators did not reveal any area of notable increase or decrease in cost with respect to such areas as professional and non-professional labor, supply usage, space considerations and general overhead. Overall subjective costs and benefits to Group Health for this teaching effort are included with others later in this report (page 86). However, current dollar costs for these courses are identified and summarized in Table V-3.

TABLE V-3
SUMMARY
OBJECTIVE ANALYSIS - FAMILY MEDICINE COURSES

		1st. Yr. FM Obs.	2nd. Yr. FM Lim. Part.	3rd. Yr. FM Lim. Part.
I.	Teaching Site per Student Day	$ 4.50	$ 79.80	$ 53.40
II.	Support Level	$ 0	$ 0	$ 0
III.	Group Health Cooperative	$ 0	$ 0	$ 0
	Total Cost per Student per Day	$ 4.50	$ 79.80	$ 53.20
	Number of Student Days (1) 7-1-74 6-30-75	X 50	X 59	X 40
Total Cost per Year		$ 225.00	$4708.00	$2123.00
Cost Savings				
	Teaching Site	$ 0	$ 0	$ 0
	Support Level	$ 0	$ 0	$ 0
	Group Health Cooperative	$ 0	$ 0	$ 0
Income (2)				
	Teaching Site	$ 0	$ 0	$ 0
	Support Level	$ 0	$ 0	$ 0
	Group Health Cooperative	$ 0	$ 0	$ 0

(1) The number of total whole days of student instruction in each course at Group Health Cooperative. (i.e., 50 student days = 50 students for one day, 5 students for 20 one-half days, etc.)

(2) At present the University pays Group Health a sum of money each year for support of teaching programs as part of the affiliation agreement. Although this is accounted by Group Health as part of income for the residency program, the agreement provides for access to Group Health by University of Washington medical students. The student teaching includes several courses not analyzed here so no apportioning of this income has yet been made.

2. Introduction to Clinical Medicine

An impact review of the first year interviewing course is found in Table V-4. Note that for some nurses there was a problem expressed,a reduction in enjoyment coupled with their increase in effort. This reduced level of nursing morale and job satisfaction could lead to reduced patient satisfaction as an indirect result of teaching, even if direct effects of teaching do not. As was mentioned in the Human Biology 413 course description, nursing time was spent in making lists of available patients suitable for student interviews. In most cases this was accomplished quite easily. Yet at times when understaffing occurred this minor task became a burden. Another problem, though the data is anecdotal and not formally summarized on Table V-4, was that there were times when patient treatment or housekeeping tasks were delayed when students were conducting patient interviews. These items may seem rather trivial from the overall perspective, but they constituted significant negative impact to the involved individuals. On the positive side, it should be pointed out that these problems were generally minimized by careful coordination by medical education specialists.

Most of the dollar cost for teaching this course series is borne directly by the University in terms of salaries to two educational assistants responsible for coordinating interviewing space, students and patients. Without this "income", the educational objective costs at Group Health would increase considerably, and the course would presumably have a much greater negative impact upon the satisfaction of the nurses, their support staff, and,directly or indirectly, on the patients.

Physician time is also a hidden cost. Course descriptions note that one of twelve preceptors for the University-based portion was a Group Health physician. This preceptor's teaching and travel time came from personal time and time scheduled for family medicine residency precepting. This latter cost is subsumed under residency costs and so represents no direct cost to Group Health, but it is a medical student teaching cost. The estimated loss of one hour of clinic time for each of the eighteen weeks is $475. With eight students present per session, the effective cost is $26.50 per student day for this physician's time. This should legitimately be deducted from the residency program cost and be added here.

TABLE V-4

TRAINING COST SUMMARY

Interviewing Course - HB 413-422-435

Objective Costs to Group Health

Value - Reported in terms of dollars per student day unless otherwise noted.

Source	Value
Physician	0
Nurse *	0.25
Educational	
Assistants	4.90
Space **	0
Materials	0
Total per student day	$5.15
# of student days ***	580
TOTAL COST	$2900.00
Income	$2842.00
Cost savings	0
Net cost	$ 58.00

Subjective Costs to Group Health

Classification	N	Effort	Enjoyment	Time (Outside teaching site)
Physician	1	↑	↑	30 min/session (8student 18 sessions)
Nurse	5	↑	↓	0
Educators	2	↑	↑	Not applicable

Student - see evaluation section

Patient - currently being assessed - delay due to generation and reviews of survey instruments by committees at Group Health Cooperative.

Other hospital employees - not directly assessed

*Nurse - Computed at $8.08/hr. including wages and fringe benefits.

**Space - One conference room was used 4 hours per day, 2-3 days/week. No other use was displaced or projected for the time occupied for teaching purposes, therefore no cost is imputed to teaching program.

***Student days - computed by number of students multiplied by the number of hou they were present divided by 8 hours.

3. Public Health and Community Medicine - Health Services 531

This course is an elective and the content for each iteration may vary according to the specific interests of the student and preceptor. At the time this course was reviewed for this project, only one student was both enrolled and studying at Group Health. The involved preceptor reported that the normal parameters of cost we have considered in this phase of the study, e.g. professional and non-professional time, space requirements, special or excess materials, additional overhead, etc., were not increased at all by the presence of a student. In other words, there was no excess direct or indirect dollar cost.

Additional time was consumed by both the preceptor and the student as a function of the course experience, but it was time not directly related to the project nor to Group Health interests. For the preceptor this was estimated at thirty hours and for the student, eighty hours. It was time spent in mutual discussions about health related affairs and in academic pursuits which originated with the project, but which were not directly required for project completion. The expenditure was generally discretionary use of personal time, and hence is not charged to this course as a cost, nor is it credited as an objective benefit.

On work directly related to the special project addressed in the course content as developed for the student and the preceptor, the student invested approximately one hundred and fifteen hours in accomplishing the goals agreed upon for the project. A research assistant who otherwise would have to have been hired to accomplish the task for the Cooperative would be paid approximately $6.50 per hour. Therefore, one could infer that Group Health realized a net benefit of $747 as a result of their cooperating with the University in the offering of the course. Additionally, the work was completed in a timely manner and the outcome satisfied internal requirements of the organization.

On the subjective level, the physician and student both reported having expended considerable effort on the special project. However, each also reported that the enjoyment, learning, and personal enrichment they received for their efforts far outweighed any personal cost.

In spite of the glowing reports above, it should be stated that several special conditions were met in this particular educational encounter:

- The project was of direct interest and benefit to the Cooperative.
- The project was of personal interest to both the preceptor and student.

- The preceptor invested his personal time in the completion of the task.
- The student was academically advanced and had special competencies which qualified him for the particular research topic.
- The student was mature and had the ability to work within the Cooperative with a minimum of direct personal support.

The outcome might have been less mutually satisfactory with a different student, preceptor, or project.

4. Subjective Impact of Courses on Group Health

Subjective cost/benefits to the Cooperative as a whole need to be addressed. These have been estimated in most cases from interview data. Efforts to quantify their value are to continue. However, as mentioned earlier, the effort required to quantify many of the subjective factors placed their measurement beyond the scope of this project. Despite this, it is felt that these qualitative issues will be given due weight in eventual negotiation between the University and Group Health over continuance or modification of medical student teaching programs.

The subjective costs and benefit accruals were:

-Community Service: The four administrators and two board members interviewed felt that Group Health had an obligation to do its "fair share" of service to the community at large. However, though they agreed that medical student teaching was an important service which they should render to the community, they were unsure as to what portion of the service obligation should be allocated to this teaching.

-Recruitment: Three of the four administrators saw benefits in:

- The eventual recruitment of the students exposed to Group Health into the service of this, or other, health maintenance organizati
- Enhanced recruiting potential of physicians in general because of the teaching opportunities within Group Health, and
- Reduced cost of orientation for those physicians recruited who had previous exposure to health maintenance organizations in their resident or undergraduate curriculum.

(Within the Cooperative, a feasibility study is being made to assess the extent to which the above might be quantified and assigned a functional dollar value).

-Reduced Staff Turnover Rate: Interviewers felt enjoyment, self-esteem, and general morale were increased as a function of teaching. Therefore, job satisfaction is increased both for nursing and physician staff. Introduction of teaching into a system would seem to increase overall satisfaction and to thereby reduce the turnover rate. However, this benefit may be outweighed by decreases in direct patient services as a function of the teaching or the decreased job satisfaction of those nurses and physicians who increase their production to compensate. (A comprehensive study of this phenomenon is planned by the University and the Cooperative).

Additional questions raised by the study which need to be addressed are the extent to which there is:

-Enhancement of the Group Health image: Involvement with medical student teaching could lead to a number of positive inferences by present and potential members. This might be reflected in increases in membership application rates or to increased retention rates for current Cooperative members.

-Qualitative Care changes as a function of teaching: The quality of health care delivered may change either positively or negatively. To evaluate this element would require a major commitment to compare teaching versus non-teaching physicians and/or sites on parameters such as patient satisfaction, or the patient management processes and outcomes.

-Loss of enrollees: Changes in withdrawal patterns may occur due to dissatisfaction with either being subjected to direct teaching activities or to increases in queuing due to losses in productivity incurred due to the teaching program. Queues at present are four to five weeks - a 500 visit per physician queue. Queue increase estimates based on the current program for Family Medicine and teaching are as follows:

	1st yr FM Obs.	2nd yr FM Lim Part.	3rd yr FM Lim Part.
Estimated increase in visits/year/ teaching physician at current level.	0	120	40
Number of physicians now involved	6	3	3

Finally, it is the intention of project participants from both the University and the Cooperative that these issues be more thoroughly investigated after the termination of the contract.

5. Summary

This phase of the project produced three interrelated, yet disparate outcomes. Firstly, there was the generation and pilot testing of a method for applying cost analysis strategies from common business use to medical practice and educational settings. This strategy included structured interviews of participants, observational schedules and logging participant's daily activities with and without presence of students. Secondly, there was the data generated from the cost/benefit analysis itself. And finally there was the conceptualization or insight which followed the presentation of the studies' outcome to those upon whom the Group Health medical student educational program impacts.

The model has been thoroughly presented in the earlier body of this section, and with certain caveats, it would appear that the business strategies used here, as well as others not used, could be used to analyse discrete cost to units of both health care delivery and health care education. The caveats are generally:

-Quantity of care assessment here was tied to gross numbers of patient visits This was not deemed to be entirely satisfactory due to: a) the nature of the visits themselves was not homogeneous, and a larger sampling in more settings would be required to dilute the effect and to make the data more generalizable and b) there were other benefits accrued to the Cooperative such as patient a health care deliverer satisfaction and education which were not readily assign 'a separate cost.

-Quality of care may have been affected by the introduction of students. Introduction of students may have led to more careful scrutiny of laboratory reports, a more thorough consideration of the presenting problems and resultin differential diagnoses, and as cost-effective medicine was being taught for, t cost-effective practice ideal may have been more closely approximated with the presence of students. Alternatively, the very opposite effects may also have occurred. Though it is felt that student impact on patterns of health care delivered should be dealt with, they were neither studied nor assigned a cost here.

-Joint production of more than one outcome from a given set of inputs confoun cost assignment. Patient care, medical student education, and such intangible effects as in-service education of staff and changes in level of morale occurred. Which outcome really should be assigned what portion of the "cost" is not entirely clear and may

C. FAMILY PRACTICE RESIDENCY TRAINING

1. Introduction

Though the original project did not stipulate a cost/benefit analysis of Group Health's Family Practice residency program, such a study is included for two reasons. Medical student teaching at the Cooperative and their family practice residency were considered together in the memorandum of understanding betweeen the University of Washington and Group Health Cooperative of Puget Sound that formalized each institutions' roles and responsibility regarding these physician training programs at the Cooperative. Secondly, use of the analysis model with the residency program both demonstrate its applicability to a higher level of clinical teaching in the health maintenance organization setting and provides some valuable data for use by the responsible medical educators.

As with medical student courses, a managerial analysis approach was taken with the residency. This methodology is based in practicality. Thus, in this study whenever the magnitude of the cost or benefit exeeded the cost of its determination, an evaluation and translation into dollar amounts was made. Costs and benefits interpretable in terms of dollars have been labeled objective. Those not readily interpreted in terms of dollars either because of their small relative importance or large determination costs, have been termed subjective. This is analogous to the medical student teaching portion of the study. The initial step was the application of the cost/benefit model developed for the medical student cost benefit analysis with the major difference having been the greater number and variety of teaching sites within the Cooperative being studied so as to include specialty rotations, coverage settings and classroom work as well as the family practice setting proper.

2. Teaching Site

a. Family Practice Setting

The first setting considered was the Family Practice Unit. Geographically unified, this is a group of offices and examining rooms in which residents conduct a continuous family practice beginning with two half-day per week in their first year with eventual expansion to five half-days per week. Along with the residents, there are two family practice preceptors in the unit who manage their own practices on half-time and precept one-half time. Overall, the residents spend approximately 40% of their time in this setting.

To objectively assess costs and benefits, one must look at the total cost of setting versus the total service output of the twelve residents and two preceptors in this setting. By comparing what it would have cost the Cooperative to produce the same or equivalent services through its usual system, one may discover the excess or marginal cost of maintaining the family practice residency program in the given setting.

As with the medical student teaching phase of the cost/benefit analysis, the only practical way available to measure health care serivice provided is through the use of the patient visit unit. This use necessitated the assumption that residents engender the same number of visits for a given population as other Group Health family practitioners. This assumption was felt to be reasonable in view of the marked influence of the preceptors who are experienced and respected practitioner and in view of the common perception that third year residents are very like the other practitioners in every aspect of their practice. On the other hand, the assumption was only made in the absence of the preferable methodology, which would have been to identify the precise characteristic of the population served by the residency and to discover the cost of serving an equivalent population within other settings at Group Health. Such a methodology would measure, without the necessity for further effort, the frequency and cost of primary care visits, laboratory, X-ray, drugs, consultations, and clinical hospital facilities. As was noted in the medical student analysis, this methodology was not deemed applicable since patient panels are not clearly defined, neither are they readily definable or manipulable for study purposes.

Use of the patient visit methodology revealed an overall annual residency production of 21, 000 visits at a cost of $326,000. This represents a cost of $15.53 per visit versus the Cooperative's general experience of $13.92 per family practice visit. Thus the excess cost of resident produced services in the Family Practice Unit is $33,810 or, dividing by twelve for the number of residents, $2,818 per resident year. This excess cost or marginal cost and a breakdown of the cost per visit, is found in TableV-5.

The cost of Family Practice residency health care is only 12% in excess of the usual Group Health cost for the same services. Further, the excess is entirely accounted for by the increased cost of nursing services per patient visit. Slight changes producing greater efficiency might allow the resdiency to break even in the Family Practice Unit. First year residents see an average of 13 patients per full office day, the second year 16, and the third year 19, and since there are only slight differences in salary year by year, it appears that the older residents are, in a sense, "subsidizing" the younger residents. Therefore increased output in the earlier years would reduce cost as would increasing efficiency of resident use of nursing staff.

b. Specialty Rotation Setting

The second major resident teaching setting is the specialty rotation in which time is spent in limited participation in the daily practice of various specialists. Residents spend approximately 35% of their total time here. The specialists have one resident in their practices from two weeks to four months out of the year. Whether or not specialists reduce their patient loads during this time is decided by the individual specialist by agreement with associates in the same specialty, for a cut-back by a given specialist is reflected in the workload of fellow specialtists. The practice reduction decisions are variable: General Surgery does not; some subspecialties of Internal Medicine do, while others do not; Dermatology does, and Ophthalmology does not; Urology does, while ENT does not. Where cut-back are made, they vary from 10 to 25% reductions.

In contrast to the family practice setting, no staff are displaced by the introduction of residents into the specialty rotation setting, nor is there a net increase in services attributable to the residents' efforts. Contrarily, there is a net cost in effort and personal time on the part of the teaching specialist and/or a loss in production of patient services. Where there is no productivity loss (i.e., no-cut-back in patient load) there is a greater expenditure through increased effort and reduced personal time .

To discover objective costs and benefits in the Specialty Rotation Setting, one must measure the decrease in productivity accompanying teaching. Once again, the patient visit must be accepted as the best available productivity measure. At Group Health an estimate of productivity loss was made through interviews of teaching physicians. Over the range of specialists, some of whom cut back and some of whom do not, the overall estimate of productivity loss is 10%. Were it not for the donation of personal time and effort on the part of those who do not use the cut-back in workload that is allowed them, the value would more likely approximate 20% productivity loss. The 20% figure was used in a previous presentation of this study's cost estimates, and whether to consider the personal time and effort involved in teaching as a dollar quantified opportunity cost to the Cooperative is a difficult decision. However, the reciprocal relationship between cut-back in patient load and personal time and effort involved in teaching is clear. In the present analysis, the 10% objective cost figure has been used and the associated increased cost in personal time and effort has been treated as a subjective cost.

The 35% time spent by residents on specialty rotation annually is equivalent to 4.2 resident years. Thus 4.2 specialist years are subjected to the estimated 10% productivity loss. If the cost of physician time with the attendant nursing services and overhead is estimated at $70,000 per physician year, this portion of the residency experience costs approximately 4.2 x 0.1 x $70,000 or $29,400. In addition, there is the cost of the resident's time, calculated at 4.2 x $10,440, or $43,848 for a total of $73,248.

c. The Coverage Setting

The third major setting considered was that of Coverage, time during which the resident is on call in the hospital in internal medicine, obstetrics, pediatrics or emergency departments. Residents spend approximately 25% of their time, or three resident years per year, in these settings. Thus, the first cost is resident-time which may be calculated as 3 x $10,440 or $31,320. There is no productivity loss in this setting, for the residental presence has not resulted in an increase in staff required for coverage purposes. On the other hand, there has been no evident increase in productivity attributable to the presence of the residents, as there has been no decrease in staff required for coverage. Thus, it would seem to be justified to interpret that there has been neither a cost in productivity loss nor a benefit through increased productivity in this setting.

Specialists in Internal Medicine, Pediatrics and Emergency Departments perceived resident coverage/teaching as an even trade-off through decreased service time but increased teaching time.

The Obstetrical coverage situation may have been an exeption which realized a net saving. Group Health presently experiences approximately eight births per day and during off-hours these are covered by an on-call obstetrician. The notorious variability of workload in labor and delivery frequently requires the obstetrician-on-call to call in the second obstetrician on-call, or back-up obstetrician from home. Since the institution of residency coverage, rarely has this been necessary. It may be estimated that this decrease in manpower requirement represents one-quarter of one physician; however, this decrease has not been directly translated into hiring or staffing policy changes.

Without consideration of the rendered obstetrical services, the total cost of the Coverage Setting is $31,320 in resident time or $2,610 per resident year. Most residencies do not include significantly long rotations in specialist offices. Traditional residencies in other than primary care are comprised almost entirely of Coverage Settings which is presumably a much less costly mode, especially where the presence of a resident is not in addition to, but is in lieu of a staff physician. Most primary care residencies teach specialty material in the Coverage Setting, without teaching in the context of the daily practice of specialists. In view of the high cost of the Specialty Rotation as constituted in the Group Health Cooperative Residency, the alternative offered by other residencies deserves consideration as a cost reduction measure unless clear and valuable learning outcomes or other benefits are documented.

d. Classroom and Off-Campus Settings

The fourth setting of the residency is the non-clinical teaching which takes place outside of the clinical setting such as classroom instruction and teaching taking place off campus. The cost of on-campus overhead for this instruction has not been evaluated because it is small in comparison to other costs, and therefore has played a relatively small role in management decision making. Otherwise, the costs of classroom and off-campus teaching are summarized as follows:

Consultant teaching fees	$3,000
Audiovisual equipment	1,000
Travel and tuition for off-campus courses	5,000
Total	$9,000
Cost per resident year	$ 750

3. The "Support System" Setting: Planning and Administration

Planning and administration costs 25% of a physician's time ($10,000), 75% of a medical educator's time ($12,125), and 100% of a secretary's time ($8,400), $1,350 in overhead, and $900 in equipment. The total of these is $32,775 per year, yielding an administrative cost of $2,731 per resident year.

4. Total Objective Costs of the Residency - Some Considerations

The total of the above objective costs is $180,153 per year, yielding a cost per resident year of 15,013 (Table V-6).

The importance of this total objective cost figure lies not in its absolute value but in its relative magnitude and in the relative contributions of the various settings to the total cost. It has been observed that the Specialty Rotation, which accounts for 35% of resident time, accounts for a disproportionate amount of the cost. By contrast with the Specialty Rotation Setting, there is the relatively low cost and high yield of training in the Family Practice Unit. Thus, the simple expedient of substituting coverage situations for Specialty Rotations, as most residencies do, would reduce the total cost to $150,753 and the cost per resident year to $12,563.

It can be seen how manipulation of settings may substantially affect residency costs. Similar examples could be elaborated for the effect of various variables on cost, including the level of attainment of the learner, educational objectives, space provided for education, and preceptor and preceptee roles; all of which ultimately be an arbitrary assignment of value by the administration.

The data revealed that the critical cost determinant was the preceptor's perception of role. How much time was felt should be devoted to teaching students? From whence should come the time devoted to teaching? Should it come from decreases in volume of delivered patient care or from reallocations of personal time? Costs such as supplies, nurses' time, laboratory requests and space were trivial in comparison to the cost of the preceptor's time. However, the issue of space for medical student teaching was felt to be a potentially significant cost source, though it was not so here due to the available facilities. Ultimate dollar costs ascribed were $79.80 per student day for second year interviewing and physical examination training and $53.20 per student day for third year interviewing, advanced diagnostic examination and initial patient management training under the current curriculum.

From this portion of the study a major outcome was the recognition by faculty and administrators at both institutions, as well as recognition by involved consumers at Group Health, of certain cost and benefit factors involved with medical student teaching at the Cooperative. These groups also came to realize that the factors were to varying degrees both quantifiable and controllable. Among the factors and constructs now appreciated by these groups are:

-Most cost/benefit apportionments are often difficult at best, and medical education in a health care delivery setting is joint production, which makes valid cost apportionment even more of a problem. However, there are analytical methods which can be used to assign to educational activities reasonable values which can then be used for planning purposes by the University and Group Health.

-A major factor influencing the preceptor's time consumption in given educational activities is role perception. One can clarify and monitor role expectations and thereby gain a measure of control over time spent for educational purposes.

-Through use of the strategy of patient visit monitoring, it may be possible to monitor dollar equivalent costs. Where fluctuations are noted concomitant to the students' appearance in clinics for teaching purposes, cost allocation with compensation can be made.

-There are subjective costs and benefits such as enhancement in patient and staff satisfaction with Group Health, prestige associated with being a medical education institution, or decreases in morale due to increases in effort or disruption of systems. These can be studied and assigned values which may be useful to managers.

In sum, this portion of the study generated both data and constructs which may prove useful to medical educators at both institutions.

TABLE V-5

Cost Per Family Practice Visit

Overall Residency Cost $326,000 Annual Residency Visits 21,000

	Residency	Overall HMO
Labor		
Physician	7.45	8.77
Nurse	5.72	2.31
Expenses	.36	.33
Overhead	2.00 (estimated)	2.51
	15.53	13.92

Expenses exclude lab, X-ray, prescriptions-these are treated as fixed costs for the HMO

TABLE V-6

Residency Program

Residency - Objective Costs

Teaching Site		Total	Per Resident
Family Practice Setting -	Actual cost per visit (teaching)	15.53	
	Equivalent cost per non-teaching	13.92	
	Net Cost/visit	1.61	
	Number of visits/ year	21,000	
	Net Cost/Year	33,810	
	Number of residents	12	
	Net cost/yr/resident		2,818
Speciality Setting			
	Labor plus Overhead	29,400	
	Resident's Labor	43,848	
	Total	73,248	6,104
Coverage Setting	Resident Labor	31,320	2,610
Classroom setting	Consultation	3,000	
	Audiovisual	1,000	
	Travel	5,000	
	Total	9,000	
Support System	Labor	32,775	2,731
HMO as a Whole		0	0
		180,153	15,013
(Cost Beyond Service Produced)			

are controllable by the program administration.

5. Subjective Costs and Benefits: A Management Concept

As mentioned in the introduction, there are costs and benefits which are neither easily measured, nor readily cast into dollar values. Such variablesinclude education of medical staff which may diffuse from a residency program, increases or decreases in staff morale associated with the presence of an educational program, or increases or decreases in consumer demand for membership in the Cooperative contingent upon the public's perception of the educational program's value. Traditional economic analysis would demand the quantification of such variables in dollars. Even the most cursory glance at some of these variables, such as morale, staff and membership recruitment, and education, leads to the inference that cost of objectifying measures of these variables could be some multiple of the annual budget for the residency itself-and the resultant dollar imputations might remain subject to accusations of arbitrariness. Nevertheless, in the absence of such objective measures, Group Health is faced with management decisions regarding its educational program.

Thus, estimates here are based on the common managment technique of listing and subjectively evaluating the intangible costs and benefits. While the Group Health administrator employing such a technique may not be able to ascribe a rigorous dollar value to changes in consumer demand secondary to the presence of the educational program, from a practical standpoint, he may discover all that is necessary for the decision-making process. Being confident that the relatively miniscule size of the teaching program has afforded no appreciable impact on the overall Group Health subscription or attrition rate, and that those consumers directly involved in the teaching program are usually satisfied at or above the level of uninvolved consumers may be sufficient. Such costs, or benefits, may not be labeled objective as they cannot be readily converted into dollars, or will not be converted because costs of rigorous measurement and conversion cannot be justified by the benefit of having the information. Even so, it may be a very real cost or benefit of which management must have some reasonable estimate as the basis for reasonable decision making.

In pursuing these managment objectives, the list of variables outlined in Appendix L, Table 1 has been assembled. Each represents a potential cost or benefit, depending on the dirction of change. Often a given variable may have been examined with respect to both Group Health employees and members. Discussion of these variables from a managerial point of view follows.

6. Summary of Subjective Costs

a. Effort and Enjoyment

Effort may be divided into the devotion of personal time and the subjective sense of effort during the working day. Interviews with the medical staff reveal that for preceptors there is increased effort associated with teaching while carrying a full clinical load without the benefit of cut-backs. For some preceptors, the reported concomitant increase in enjoyment is so great as to subjectively balance or outweigh the increase in effort. However, even in such cases, it is perceived that the increased effort could not be sustained throughout the year without a substantial negative effect. For medical staff members whose increased effort is not offset by increased enjoyment the "cost" is evident and may be critical. The dollar values which might be attached to this effort change are subject to negotiation and have not been quantified. Further, as certain portions of the cost in effort may be offset by a benefit in morale, effort alone cannot be a sufficient base from which to make decisions regarding an educational program. It is also clear that it would be unwise to choose preceptors whose personal effort is not perceived as being somewhat balanced by the increased enjoyment they associated with teaching.

Nursing staff employees reported no marked changes in effort as a function of the residency teaching situation. However, some have reported a benefit of increased enjoyment associated with professional education.

In Coverage situations, with the exception of Obstetrics which has been discussed above, the interview results indicate an approximate balance between the increased effort of teaching and decreased effort expended in service. There was also increased enjoyment for about half the surveyed staff associated with teaching. Internists indicated that should such resident coverage be expanded, the balance would shift toward a net benefit resulting from a decreased service effort. It is obvious that for a systematic effort reduction to occur to the extent that it affords an objective benefit (as obstetrical coverage does), the coverage delivered by residents must be pervasive and consistent. Nursing staff reported no significant changes in effort or enjoyment in coverage situations with the exceptions of the Emergency Department, where working with residents was sometimes perceived as requiring increased effort due to slower work rates and variations in levels of ability; and ward coverage, where the availability of an on-call resident when ward problems arose was perceived as decreasing nursing stress.

The consumers' sense of effort and enjoyment seems adequately balanced. Effort, in the sense of personal time expended, is often increased in all three clinical settings - Family Practice, Specialty Rotation, and Coverage. But it is either perceived as a negligible cost or it is associated with appreciation and/or enjoyment of the attention. Rejection of the attentions of the resident has been an infrequent problem which is easily handled in its rare occurence.

b. Consumer-Related Factors

The effect of the residency on demand for membership is considered trivial. Indeed, the presence of the relatively small residency is not widely known to the public. Consumer satisfaction with residency-related services is felt by the staff to be at or above the average level so that a negative impact on demand would not be expected unless the residency format were drastically changed.

Dissatisfaction with house staff-provided services in other programs is often associated with settings in which the house staff is preponderant and is not adequately "leavened" by experienced staff. This is clearly not the case at Group Health.

c. Health Care Delivered

The staff did not feel the availability, accessibility, and acceptability of the health care delivery were significantly affected by the residency program. Occasionally the long hair or casual dress of a resident was mentioned regarding acceptability, but a significant rejection by consumers has not been noted. Also mentioned was the fact that residents build their practices partly of difficult patients and patients uncommitted to any one physician-this may be interpreted as an increase in availability and accessibility, but in any case, is expressly appreciated by the more senior medical staff.

Adequate outcome measures of effectiveness have not been devised for Group Health as a whole, much less for the residency alone. Regarding quality as measured by process, it is the general opinion of the staff that sub-standard care has been eliminated in the Family Practice Unit. Some staff report that in preceptor situations they are more careful to insure that process adheres to formal ciriteria, and this behavior may lead to an increased quality of care.

d. Recruitment

It is generally believed that the residency has a moderate positive effect on recruiting but not enough to induce any great stress were the residency to be eliminated. Recruitment is affected in a number of ways. Approximately half of the residency graduates themselves are recruited onto the Group Health staff.

In addition, each year two hundred applicants for four residency positions are exposed to the Cooperative. There may be some increased recruitment and/or decreased turn-over associated with recruits who prefer an institution committed to teaching. Finally, the presence of the residency itself may induce modifications in the style of GroupHealth practice designed to make it more attractive to current residents which also makes it more attractive to residency graduates.

e, Morale

The general morale of the staff seems mildly increased by the presence of the residency. There are exceptions, but those who express displeasure are only mildly affected and are not those directly associated with the residency. Morale of those teaching seems moderately increased, which is to be expected since they have chosen to teach.

Morale is a complex function, dependent upon effort, enjoyment, education, a perceived need to teach, and a perception of increased institutional or individual prestige derived from teaching. These ramifications of relationships will not be elaborated. Morale is most positively affected where coverage situations are associated with a large decrease in effort expended in service. As discussed above, such a situation obtains in Obstetrics, and, potentially, in Internal Medicine and other direct coverage settings.

f, Continuing Education

The continuing education of the medical staff, especially the Family Practice Staff, is considered to be moderately augmented by the presence of the residency. Residents conduct one-third of the family practice educational conferences. Further, there is the difficult-to-measure, but important diffusion of learning by random contact by staff with the residents or their preceptors to bring new ideas, information, approaches and challenges to the staff. This diffusion is maximized in coverage situations, although unfortunately there is no coverage situation which consistently exposes the residents to the full family practice staff. There is also the stimulation of preceptors to independently further their own education through extra reading or participation in more formal learning experiences, which effect is perceived to be moderately positive. It has also been noted that some nurses in preceptor situations appreciate a moderate educational benefit.

7. Overall Outcome

The overall outcome of the residency cost study was parallel to that of the medical student course cost study. Methodologies were developed and piloted which generated cost data regarding the training of residents in a health maintenance organization. Further, where it was demonstrated that certain parameters could be readily quantified, there were others for which the cost of objectifying would have exceeded the potential value of information obtained. Even for these, however, subjective evaluations of relative cost , benefit and impact could be made which could be of use to decision makers within the University and the Cooperative.

Resource Paper No. 16

MEASURING THE COST OF PRIMARY CARE RESIDENCY TRAINING *

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* From Part III of the Harvard University Final Report, December 1975. Project to Develop Curriculum for Physician Training in HMOs.

MEASURING THE COSTS OF PRIMARY CARE RESIDENCY TRAINING

The Harvard affiliated hospitals, like teaching hospitals throughout the United States, have planned and developed residency programs in response to the service needs of the institutions and in conformity with accreditation requirements of specialty boards. The response to service needs has permitted program directors to assign direct costs of the residencies to the hospital. Thus, residents' stipends, fringe benefits, laundry, health insurance, and more recently, malpractice insurance, have become part of the operating costs of the hospital. In this capacity the direct costs are included in the day rate along with nursing services, dietary, housekeeping, and so on. The amount of these direct costs have been determined by the laws of supply and demand with pressures to increase wages coming from house officer associations, comparison shopping by senior medical students and the attendant fears of losing qualified applicants to better-paying training programs. Negative pressure on wage levels has come predominantly from the ability of prestigious training programs to recruit good house officers while offering low wages, and from peer pressure among other teaching hospitals to hold the line on escalating wages. The indirect costs of inpatient training in the form of faculty time required for teaching rounds and didactic sessions, administrative costs for interviewing applicants and going through the selection process, unnecessary laboratory tests and x-rays, and longer hospital stays are more difficult to measure. These costs are partially allocated to the day rate and to research grants and donated time of clinical faculty.

The development of primary care training programs has shifted part of the teaching from the inpatient service with its economic buffering capacity of the day rate and research grants to the ambulatory setting with its more stringent requirements for economic accountability. In fee-for-service ambulatory settings, reimbursement formulas still lag behind those negotiated with third party payors for hospital-based care, and few research grant-funded faculty have been eager to teach ambulatory medicine - to say nothing about their appropriateness had they been willing. This contrast in the financing of educational programs in the two settings is further heightened by the nature of patient flow. The inpatient occupancy rate - and thus, reimbursement rate,- is scarcely influenced by the time devoted to teaching. As noted above, the influence is in the direction of prolonging hospital stay and hence increasing occupancy rate. This added cost is then borne by society at large but may actually be viewed by hospital administrators as a positive financial benefit. However, in the ambulatory setting, a patient not seen because of a teaching conference or preceptorial discussion is a patient fee lost to the practice. In a pre-paid practice this loss is expressed as a decrease in staff productivity which would require a larger staff to provide the same benefit package to the subscriber. As part of the A.A.M.C. curriculum project at Harvard Medical School, we have attempted to measure the cost of residency training in the HMO setting of the Harvard Community Health Plan (HCHP) and the Harvard Primary Care Program.

The HCHP is a pre-paid group practice with a membership of 50,000 enrolled in two centers. The Kenmore Center serves 35,000 members in Boston and is affiliated with the Beth Israel and Peter Bent Brigham Hospitals, the Children's Hospital Medical Center, and the Boston Hospital for Women. The Cambridge Center opened in 1973 after receiving a grant from the Robert Wood Johnson Foundation which was given in part to create a site for the training of primary care physicians. The Cambridge Center is affiliated with the Cambridge Hospital and currently serves 15,000 members with a projected goal of 35,000 members in full enrollment.

The Harvard Primary Care Program began in 1973 with a group of six internal medicine residents at the Massachusetts General Hospital (2), the Beth Israel Hospital (2) and the Peter Bent Brigham Hospital (2). The program was expanded to eleven residency positions in 1974 with the help of a grant from the Robert Wood Johnson Foundation and matching funds from Harvard Medical School. In July 1975, the adult primary care residency further expanded to include the Mount Auburn Hospital and Cambridge Hospitals and the Cambridge Center of the HCHP, with a total of 23 residency positions in all sites. A track in primary care pediatrics was initiated at Children's Hospital Medical Center and nurse-practitioner training has been integrated with the adult primary care residency at the Massachusetts General Hospital. Funding for the program is guaranteed only through June 1977. Thus, from the very beginning we have been aware of the need to document the costs of training residents in ambulatory settings in order to make appropriate cost-saving modifications in the program which would have minimal impact on the educational content of the curriculum and to be more persuasive in negotiating reimbursement rates with third party payors and continuing support from medical school funds and foundation grants. In a larger sense, we hope that our efforts and those of other groups examining the costs of primary care training will influence the federal manpower legislation in a realistic and positive way.

From the outset it was obvious that certain costs and benefits of the residency program would be difficult to measure and others would be unfeasible or impossible without resorting to elaborate accounting systems, some of which immediately raised the question, "is the juice worth the squeeze?" The impact of the residency program on marketing the HMO is one such example. For some prospective members the presence of a resident might be a deterrent because the prospective members expects to receive care from a fully-trained professional in return for paying the premium. Or the residency program might be perceived as linking the HMO with all of the negative features of the teaching hospital OPD. On the other hand, some people would be attracted to an HMO with residents in training because of the desire to have a personal physician who is also a teacher. This view has in fact been expressed by several members of HCHP. As important as these costs might be to the HMO, we are not attempting to measure them at this time.

We are focusing on the costs related to physician productivity in the HMO. Data is collected for management purposes on all visits to the Kenmore and Cambridge Centers of HCHP. These encounters are recorded as number of single visits (15 minutes), complete check-ups (30 minutes) and long returns (30 minutes) on a monthly basis. The total number of encounters are then converted to the number of 15 minute equivalents in order to calculate the average number of equivalent visits each provider had per session. The full-time physicians have eight sessions of four hours each per week at the

Kenmore Center while the Cambridge physicians have nine sessions of three and a half hours each if they are full-time. To achieve comparable rates, the Cambridge physicians' productivity is calculated on the basis of adjusted equivalent visits per four hour session. Similar calculations are made for the nurse practitioners and primary care residents at each site. If all 15 minute slots were filled by the appointment clerk, each physician should see the equivalent of 16 patient visits per session. The Harvard Primary Care Program reimburses HCHP for 30% of a staff physician's salary for each full-time equivalent resident. The 30% reduction in patient load to allow time for precepting the resident would be equivalent of 4.8 visits per session, reducing the staff physician's productivity to 11.2 visits per session. Several factors make this direct translation erroneous. First, the primary care curriculum includes a series of didactic sessions covering the important topics in ambulatory medicine. Preparation for these sessions consumes varying amounts of time depending on the instructors previous familiarity with the topic, his or her interest in the subject matter, and the format of the presentation. Secondly, only four sessions per week of the resident's time is devoted to internal medicine. The other four sessions at Kenmore (five at Cambridge) are spent in dermatology, office gynecology, minor orthopedics, ENT, ophthalmology, and psychiatry. In most of these areas, the resident works with less independence than in internal medicine and sees fewer patients who are not also seen by the staff physician. Thus, the cost to the system is shifted toward the non-internal medicine disciplines where the preceptor spends more supervisory-teaching time with the resident and the resident "produces" fewer net patient visits for the system. It is in this latter area where we are experiencing the greatest difficulty in quantifying the impact which the resident has on the number of patients which the specialist can see per session.

For the internal medicine encounters during July 1975 at the Kenmore Center, the average staff physician had 12.5 equivalent visits per session with a range of 9.8 to 17.3. The physician averaging 17.3 visits only worked 6 sessions during the month, and it is likely that he "over-booked" in order to see some of his returns before leaving on vacation. The 15 staff internists worked an average of 17.2 sessions during this vacation month. Six primary care residents each worked an average of six sessions during this same period with a 7.1 equivalent visit per session productivity. If the three senior residents who had spent six months of the previous year at Kenmore and were now returning for their one session per week follow-up are analyzed separately, we find that they had an average of 8.3 equivalent visits per session. The three junior residents, at HCHP for their first rotation, averaged 6.3 visits.

Data for the Cambridge Center for the month of June, 1975 (the last month without primary care residents) are as follows: Six internists working an average of 25.2 sessions had an average of 13.0 equivalent visits per session. The four adult nurse practitioners worked an average of 31.7 sessions, seeing 8.1 equivalent patient visits per session. Part of the discrepancy between average number of sessions worked by the nurse practitioners compared with the internists at the Cambridge Center is accounted for by the fact that three of the four nurses work full-time and the fourth combined clinical with administrative responsibilities, whereas only three of the six internists schedule seven or more clinical sessions per week. The remainder of their time is devoted to administration, hospital-based practice or home responsibilities.

When analyzed separately, the full-time physicians averaged 12.8 equivalent visits per session and the part-time physicians averaged 13.6 visits. One might argue on the basis of these findings that productivity increases as number of sessions per week decreases. If this observation were to hold up over time and with larger numbers of physicians involved, one might then argue that decreasing a staff internists' number of sessions to create time for teaching might actually increase unit productivity for the remaining sessions.

If we assume that all other factors at the two centers have equal impact on physician productivity, the presence of residents at Kenmore can be said to have lowered the per session equivalent visits from 13.0 to 12.5. There were 258 staff sessions at Kenmore during this period which translates to a loss of 129 equivalent visits for the month. Against this cost must be balanced the equivalent visits provided by the residents. During their 36 sessions at 7.1 visits per session, the residents provided care for 256 equivalent visits for a net gain of 127 visits for the month. If we further assume that a full-time resident with four internal medicine sessions per week averaging 16 sessions per month, at 7.1 visits per session, will generate 114 visits per month, this can be compared with the staff internists productivity. The full-time internists working 32 sessions per month at 12.5 visits per session will provide 406 equivalent visits. As pointed out earlier, the remainder of the resident's week is devoted to more purely educational activities so far as HCHP is concerned, and the resident's contribution in terms of added patients cared for is minimized if present at all. Therefore, we can use the equivalent visits in adult medicine alone to compare productivity with a fully trained internist.

The 114 resident visits are 28.5% of the staff physician encounters. If we include the 0.5 equivalent visits per session difference between the center with (Kenmore) and the center without residents (Cambridge), the resident's net productivity decreases to 27.4% of a staff internist. In our budget calculations for this fiscal year, the average staff salary was $36,000 and the average resident stipend $12,000, with fringe benefit costs being slightly greater for the staff physician. Based on these salary figures alone, the resident would have to produce 33 1/3% as many encounters to equal the staff physician's output on a cost-equivalent basis. The 5.9% short-fall (33.3% - 27.4%) would then be the net cost to HCHP of the training program. For each full-time equivalent resident this amounts to a net cost of $2124 plus fringe benefits per year.

Having said all of this, what is wrong with out method of calculating costs? First, assuming that the above data are reliable,we have not included the cost of space. In order for HCHP to deliver equivalent services to its enrollees, two residents are required to replace each staff physician (7.1 equivalent visits per resident session is 57% of the 12.5 visits per internist). This figure, rather than the 28.5% value, is used for space costs because we are here concerned only with the internal medicine space needs. Stated in cost terms, each resident requires twice as much space as a staff physician. With the decreased productivity per unit space, the total enrollment in a facility using residents will have to be curtailed. During the start-up period in the Cambridge Center, ample space is available because the membership of 15,000 is cared for in a facility designed for 35,000. The space cost now is nullified by the benefit to HCHP of having additional staff to increase the capacity to keep a physician - nurse practitioner - resident team open to new members. This ability to avoid closing a team to new members is mainly thought to be a marketing asset, and as such is very difficult to quantify.

Administrative costs are comparable to space costs. For each new or additional person required to deliver the benefit package to subscribers, there are additional administrative costs, i.e. processing the forms for salary, fringe benefit and tax purposes, orienting new employees to the center, planning appointment schedules, making space assignments. A major administrative cost for HCHP during the past year or two has been the staff time required for planning the residency itself and in discussing the method of presenting the program to membership followed by the actual presentation.

A potential cost of the residency is the possibility of a higher rate of hospitalizations, more frequent return visits, and more frequent use of laboratory and x-ray examinations among patients seen by residents. We have no data yet to shed light on this question. Several confounding variables make it unlikely that we will ever have accurate data in these areas. First, the preceptor is actively involved in such major decisions as when to hospitalize a patient, what laboratory studies are most appropriate, what consultations should be requested, and how soon should the patient return. But as anyone familiar with the decision-making process on in-patient teaching services can attest, learning clinical management occurs in direct relationship with the amount of responsibility allowed. The second variable is the conscious pre-selection of difficult clinical problems for the resident to follow. In order to fulfill the objectives of the primary care curriculum, this referring of complicated patients to the resident's panel will continue.

Some of the benefits for HCHP of having primary care residents in training have already been mentioned. An important one is the increased ability of the Plan to attract staff physicians because of the opportunities to teach. At the present time of steady growth in Plan membership, a significant amount of administrative and professional time is devoted to recruiting new physicians. The historical precedent of Group Health of Puget Sound has not been lost on HCHP, which views the preparation of future staff physicians as an important result of the residency program. Anything which serves to limit the amount of time spent in recruitment activities by the highest-paid physicians in the HMO is a very real financial gain for the practice. Hiring a physician who has been a resident in the practice also tends to minimize the risk involved whenever new employees are brought into the group. Again, however, all of these factors themselves involve multiple variables, and it is doubtful that any reliable value can be affixed to these personnel costs and benefits.

Finally, there is the benefit to society at large in having physicians trained to provide primary care services. If this benefit is perceived as a justification for public support of primary care residency programs, the HMO may benefit directly by receiving public funds for educational purposes. HCHP is already receiving generous private support from the Robert Wood Johnson Foundation because of the view that society will benefit from the special training of physicians for primary care functions.

In summary, we have outlined an approach to measuring costs involved in training primary care residents in a health maintenance organization. Among the many different costs and benefits which have impact on primary care residency training, physician productivity emerges as the central factor. It is also the easiest factor to measure quantitatively. Preliminary results from the Harvard Primary Care Program and the Harvard Community Health Plan suggest that residents, at the end of their second year of training, who devote only half of their time in the HMO to internal medicine patients, are capable of seeing 7.1 equivalent visits compared with 12.5 for the staff internist. When factors of different salary levels between resident and staff physician, and the need for the resident to rotate through other specialties to acquire primary care skills are factored in, the cost to the HMO of training the primary care resident is approximately $2000 per year. As we gather additional data, the validity of this figure will be tested.